



U.S. NAVY MEDICINE

July 1978

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U.S. NAVY MEDICINE

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COVER: A CH-46, on a medevac mission, comes aboard the USS *Inchon* (LPH-12). For a closeup look at shipboard medical practice, see page 10.

From the Surgeon General

Turning Barriers into Bridges

Compare today's health-care environment—both within the Navy and outside it—with that of just a few years ago. Consider the quantum changes that have occurred in population dynamics, communication, data processing, financial management, and energy.

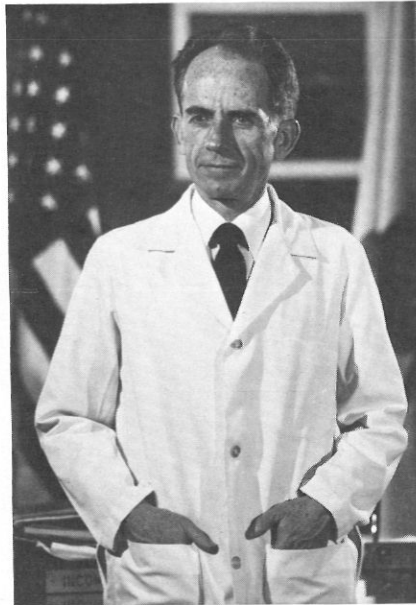
Health care today is a highly complex enterprise, impacted upon by these and many other realities. The time is long past when one individual, in one profession, can deal with it all.

Nevertheless, no one element can be dealt with in isolation from others.

We are professionals, all of us, in the Medical Department. And we are dependent, each of us upon the other, for accomplishment of the department's mission.

Fostering a spirit of unity is one of my most important goals. But this spirit will elude us unless we step back, from time to time, and reflect on each other's contributions.

This month I would like to talk to you about the contributions and potential of the Medical Service Corps. Explosive technological change and advances in management theory led to the establishment of this corps. Present and future developments will inevitably require expanded responsibilities for its members.



At no time have the opportunities in this area been brighter. Health care is a growth industry, consuming an ever-increasing share of the gross national product. And simple prudence, as well as heightened visibility, demands accountability.

Health-care administrators and financial planners are in short supply: there is more than enough work to go around. We must strengthen our direct-accession programs to give us a broad mix of academic backgrounds. At the same time, we must continue to select highly motivated and talented members of the

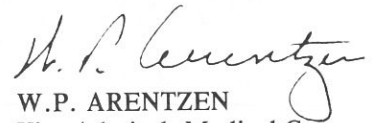
Hospital Corps for in-service officer procurement, taking advantage of the experience base they bring to their assignments.

Modern medicine, with its constantly growing sophistication, has an insatiable appetite for allied-science expertise—not only in the usual laboratory roles, but, more and more, in clinical responsibilities. I see no evidence of a decrease in this trend: we must keep up with the state of the art.

I expect innovative thinking; I require inventive management. As health care comes under ever-greater government control and review, the opportunity to work—and exert an influence—on this frontier should be an exciting challenge to imaginative, creative professional growth.

We are one Medical Department, not a series of autonomous units. If before there were barriers, I want those barriers to become bridges—to each other and to our patients.

Opportunity is constrained only by the limits of your imagination.


W.P. ARENTZEN
Vice Admiral, Medical Corps
United States Navy

Department Rounds

Topsy-Turvy World of R&D

Anyone who's ever been upside down in an airplane knows it's a *sine qua non* to be strapped in tightly. But anyone who's had to be on the lookout for enemy aircraft or missiles knows that, in such situations, there's an equally important need for some freedom of movement.

Pilots and crewmen have complained about these conflicting necessities for years. Several different types of restraining device have been developed over time, and each has been through many modifica-

tions. But the capabilities of these devices simply have not kept up with aircraft capabilities.

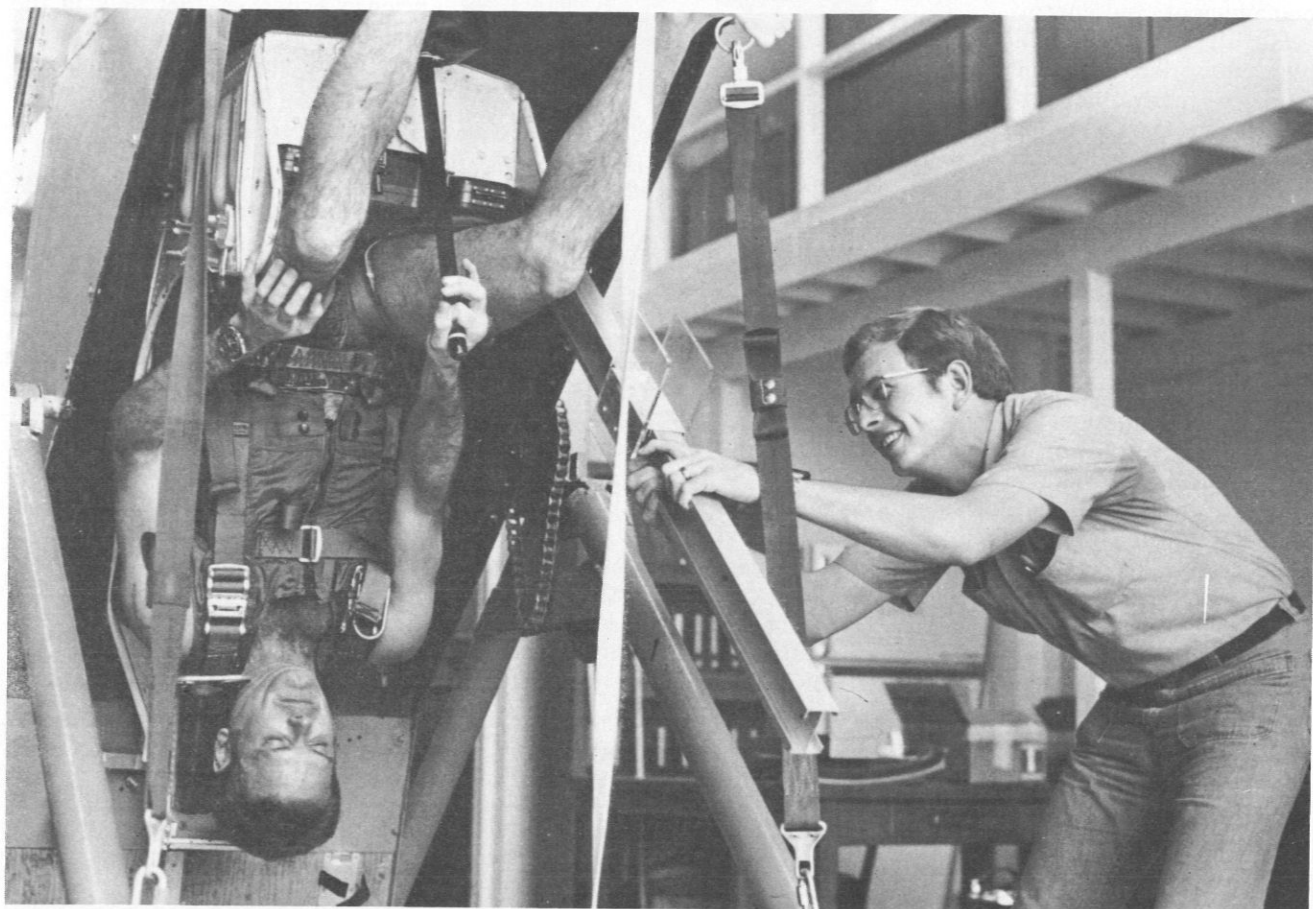
Now the Navy has decided that the standard torso harness restraint system will no longer fill the bill. As a result, Medical Department personnel at the Naval Air Test Center, Patuxent River, Md., are participating in a research effort that could lead to an entirely new system.

"Our job at this point is simply to identify the problem," says LT Bob Bason (MSC), an aviation physiologist in the Systems Engineering

Test Directorate at NATC. While the shortcomings of the system were a matter for conjecture before, he adds, "We are gathering evidence now."

In so doing, LT Bason and a team of five volunteers are subjecting themselves to some very disagreeable duty.

After donning the MA-2 torso harness used in all Navy aircraft with ejection seats, the volunteer is strapped into a homemade device that has been fittingly nicknamed "the rack." The device turns the wearer upside down and holds him there for as long as he can stand it, while precise measurements of his body movements are made.



HM1 Jim Folz braves 'the rack' while HM2 Jon Etheredge measures body shift. Photo by PHAN Brian Caughlan.

These upside-down moments are always uncomfortable—and often very painful. Only partly in jest, team members have blacked out the laboratory windows and made a practice of keeping the doors shut, lest their moans and groans disturb employees and prove unsettling to visitors.

"We're very careful, and every test is well supervised," LT Bason emphasizes, "but the men are subjecting themselves to quite a bit of discomfort. Sometimes they dangle more than two and a half inches out of the seat, even though they have been strapped in very tightly. The straps and buckles often bite deeply into the flesh."

And because the volunteers wear only swim trunks under the harness, so that measurement marks can be placed on their skin, they probably experience a great deal more discomfort from the straps and buckles than an aircraft crewman would.

As to what has been learned so far, "We've only touched the tip of the iceberg," says LT Bason. But, he adds, the tests have already shown that the extent to which the MA-2 allows the inverted man to dangle from his seat "seriously degrades the crewman's ability to perform in the cockpit while experiencing G-forces."

Moreover, he notes, "Our laboratory tests are done at only 1G, while the pilot might be experiencing 6G or 7G in today's aircraft—and maybe 10G or 12G in aircraft of the future."

The inertial reel, which is designed to retract the shoulder harness and pull the pilot back into his seat, has also proven inadequate, LT Bason explains. If the G-forces build up gradually—as happens in many instances—the inertial reel does not undergo the 2½G sudden force necessary to activate it. The shoulder straps continue to pay out,

with the result that the pilot may end up with his face buried in the instrument panel, and with little or no control over his movements.

"Obviously, when the pilot or crewman is put into such an awkward position, it becomes very difficult to operate the necessary controls," says LT Bason. "Sometimes he can't even reach the ejection seat handles."

A study of medical officer reports on 920 ejections from aircraft has shown that 5% of the crewmen involved had a problem with the standard torso garment. In some of these cases, the men had made non-standard modifications in the harness or were otherwise not using it properly. But evidence from the early NATC testing shows that the integrated torso system does not meet the needs of those who use it,

even when it is fitted and operated to perfection.

"Clearly, the Navy needs a new restraint system for use with ejection seats," says LT Bason, "but it might be a while before one is developed. This is only the first stage in that possible development: the collection of data to properly identify the problem."

To supplement what the NATC volunteers are learning in their unpleasant encounters with "the rack," the Navy is also gathering data through an aircrew personnel questionnaire.

"Once we know exactly what is wrong with the present system," says LT Bason, "we can offer some design recommendations for a new system."

He and his team hope to be able to do that by the end of this year.

Personnel Changes Afoot

Recently released orders for a number of Medical Department flag officers and flag selectees are bringing a spate of personnel changes over the summer months.

At BUMED in September, RADM **Henry A. Sparks** (MC) will be Deputy Surgeon General and Assistant Chief for Headquarters Operation, replacing RADM **Robert G. Williams, Jr.** (MC), who is retiring. RADM Sparks's current post—BUMED Assistant Chief for Operational Medical Support—will be filled by RADM-selectee **John R. Lukas** (MC), now Commanding Officer at NRMC Corpus Christi.

RADM-selectee **Melvin Museles** (MC), formerly CO at NRMC Jacksonville, is BUMED's new Inspector General, Medical, replacing RADM **Roger F. Milnes** (MC), who be-

comes BUMED's Assistant Chief for Human Resources and Professional Operations. That post is being vacated by RADM **J. William Cox** (MC), who will relieve RADM **D. Earl Brown, Jr.** (MC), as CO at NRMC San Diego.

RADM Brown will replace RADM **George E. Gorsuch** (MC), currently Fleet Surgeon to CINCPAC. RADM Gorsuch will then take over as Commanding Officer of NRMC Portsmouth, Va., replacing RADM **William J. Jacoby, Jr.** (MC), who retires this month.

The Naval Regional Dental Center at Norfolk will also have a new Commanding Officer: RADM **John B. Holmes** (DC), currently serving as CO at NRDC San Francisco. He will replace RADM **George A. Besbekos**, who is retiring.

Instructions & Directives

Medical and dental items for standardization or testing

Standardization of medical and dental items is based on one or more of the following criteria: (1) the item is necessary in the practice of military medicine or dentistry, (2) it is an insurance-type item, or (3) it is designed primarily for use in field combat units or other elements of the operating forces. Decisions on standardization are made on the basis of both professional and supply requirements.

The Director, Equipment and Logistics Division, BUMED Code 43, is designated coordinator for item testing and evaluation in Navy medical and dental facilities. The Director, Medical Materiel Division, BUMED Code 42 (Commanding Officer, Naval Medical Materiel Support Command), is the Navy coordinator for standardization of medical and dental material.

Testing. Normally, requests for testing and evaluation of medical and dental items are processed prior to a recommendation for standardization. Requests should be forwarded via official channels to BUMED Code 43 (with a copy to BUMED Code 6 for dental items) and should include the following information: name and address of supplier; model number, catalog number, or other positive identification; requisition cost of the item; number of units required for testing; site(s) of test; duration of test; proposed testing protocol.

Conditions for testing and evaluation:

- The item to be tested will be provided at no charge to the Government.
- The Government incurs no obligation or liability to the supplier as a result of acceptance for testing and evaluation.
- The item will be returned to the supplier in "as is" condition upon completion of testing. If subsequent purchase is made, a new item must be furnished.
- Evaluation reports will be the property of the U.S. Government, labeled for "Official Use Only," and shall not be released to industry without BUMED consent.

Evaluation. When the test is complete, an evaluation containing all pertinent information on product performance and reliability will be forwarded to BUMED Code 43 (with a copy to BUMED Code 6 for dental items). Comments should include such considerations as ease of operation, technician acceptance, maintainability, quality of workmanship, and any hazards noted, together with any recommendations regarding standardization.

Standardization. Recommendations for standardization of medical and dental material should be forwarded via official channels to the Commanding Officer, Naval Medical Materiel Support Command, 3500 S. Broad St., Philadelphia, Pa. 19145 (with a copy to BUMED Code 6 for dental items), and should contain sufficient information and details to permit a thorough evaluation of the recommended item.

Recommendations should include the following: descriptive data, including trade name, dosage form, strength, packaging, unit cost, manufacturer, model and catalog numbers; appropriate literature and manufacturer's brochures; justification for standardization.—BUMED Instruction 6700.33D of 9 Mar 1978.

Recovery and use of precious metals

DOD Directive 4160.22, Recovery and Utilization of Precious Metals (NOTAL), directs that all DOD components establish and monitor a program to reclaim precious metals to the maximum extent practicable for use as Government Furnished Material (GFM) to reduce costs of new procurement.

NAVSUPINST 4570.22, Recovery and Utilization of Precious Metals (NOTAL), establishes the program within the Department of the Navy and directs that the Chief, BUMED, designate a coordinator to implement and monitor the DOD Precious Metals Recovery Program (PMRP)

in activities under the command of BUMED.

Assignment of coordinator. The Naval Medical Materiel Support Command (NAVMED-MATSUPPCOM) is designated PMRP Coordinator for BUMED.

Policy. All BUMED command activities generating precious metal bearing excess (items coded "M" in the Federal Supply Catalog), scrap material, or precious metal bearing residue (exposed and outdated X-ray film, photographic film, dental scrap, processing solutions, etc.) will participate in the PMRP. Navy funds will not be used for the procurement, maintenance, and repair of recovery equipment or shipment of material.

Action. Activities shall identify potential sources of recoverable precious metals, ensuring training of personnel to recover the precious metals, ensuring availability and operation of recovery equipment, and establishing necessary internal control measures to fix an accountable audit trail. Assistance in indoctrination, facility survey, training, and other aspects of precious metals recovery may be obtained directly from the Defense Property Disposal Precious Metals Recovery Office (DPDPMRO-E), NAD Earle, Colts Neck, N.J. 07832.

To maintain a responsible program, the following procedures must be followed:

- Operate and maintain precious metals recovery equipment under local cognizance, except where, by inter/intra service support agreement (ISSA), the local defense property disposal office (DPDO) provides recovery service. The use of ISSAs is encouraged.
- Account for and turn in precious metal bearing items and recovered precious metals to the servicing DPDO and obtain a receipt at the time of turn-in. If directed to ship precious metal bearing materials or recovered precious metals to DPDPMRO-E, obtain a funding citation from the servicing DPDO.
- Submit requirements, with justification, for recovery equipment, replacement, or major maintenance on existing equipment to DPDPMRO-E.
- Promulgate a local instruction or operating procedure to implement the precious metals recovery program and require maintenance of auditable records of material collected and turned in to DPDO/DPDPMRO-E.
- Provide copies of instructions, procedures and correspondence relative to local participation in the PMRP to NAVMEDMATSUPPCOM, 3500 S. Broad St., Philadelphia, Pa. 19145.—BUMED Instruction 4010.2 of 14 Feb 1978.

Controlled-substance inventory

MANMED chapter 21 and the Comprehensive Drug Abuse and Control Act of 1970 direct specific controls over narcotics and controlled substances through audits, inventories, and security measures. However, the need for improved methods to ensure the security of these items is recognized. Comments on deficiencies in this area are repeatedly made by the Naval Audit Service; the Inspector General, Medical; the Joint Commission on Accreditation of Hospitals; and other agencies.

In addition to the requirements prescribed by MANMED chapter 21 and the Comprehensive Drug Abuse and Control Act of 1970, the following actions are directed:

- Schedules I and II drugs, and Schedule III narcotics, alcohol, and alcoholic beverages will be inventoried monthly by the Controlled Substance Inventory Board *without advance notice*.
- Quality-control measures shall be established on all locally compounded products containing controlled substances. Periodic analyses of products containing narcotics shall be performed.
- Completed prescriptions shall be checked, at random, to ensure that they correctly correspond, both in quantity and substance, with their labels and their written prescriptions.—BUMED Notice 6710 of 4 May 1978.

Scholars' Scuttlebutt

Clerkships at Navy Medical Facilities

Summer is upon us, and with it a surge in active duty for training orders. Navy scholarship students may serve their ACDUTRA period at other times during the year, but most enter ACDUTRA assignments in the summer quarter.

Some of you will be serving your ACDUTRA period this summer in clinical or research clerkships at Navy medical facilities. These clerkships are often your first contact with the Navy, and we are well aware that your experiences during this time will have a lasting effect on your view of the Navy health care system as a potential career vehicle. Therefore, we make clerkship train-

ing meaningful from the military as well as the professional point of view by devoting significant parts of the curriculum to active naval service and to military health care. Clerkship clinical rotations and research experiences are carefully planned to fulfill your professional and academic requirements, within the training command's resources and mission.

Clerkship programs are conducted at naval regional medical and dental centers, naval hospitals, and Medical Department research activities in the United States and Puerto Rico that have the required training capabilities. Generally, first-year

and second-year students will not be assigned to clinical clerkships; however, third-year and fourth-year students are eligible for both clinical and research clerkships. Clerkships are assigned according to the quotas established at training sites. Scholarship students will receive information on clerkships from the Naval Health Sciences Education and Training Command.

The first receipt of ACDUTRA orders can be a daunting event. To cast some light on the subject, we offer an annotated set of ACDUTRA orders at right. A more detailed description of your assignment will be provided with your orders.



STUDENTS ON TOUR . . . Navy recruiters recently arranged for medical students at the University of Arizona to tour San Diego area installations. Here, at NAS Miramar, they hear a lecture on aviation medicine.

THESE ORDERS ARE ISSUED BY THE COMMANDING OFFICER, NAVAL HEALTH SCIENCES EDUCATION AND TRAINING COMMAND (NHSETC), LOCATED AT THE NATIONAL NAVAL MEDICAL CENTER (NNMC), BETHESDA, MARYLAND. YOU ARE ATTACHED TO THIS UNIT

ACCORDING TO PUBLIC LAW 92-426, ALL ENSIGNS, REGARDLESS OF PRIOR SERVICE, ARE PAID IN OFFICER GRADE #1 (O-1) DURING ACTIVE DUTY FOR TRAINING.

YOUR GRADE, NAME, AND ADDRESS. MAKE SURE HSETC CODE 9 HAS YOUR CURRENT ADDRESS SO YOU GET ORDERS PROMPTLY

ACDUTRA LASTS 45 DAYS

PHYSICAL EXAM FORMS 88 AND 93 MUST BE COMPLETED BEFORE REPORTING FOR DUTY

MAKE YOUR OWN TRAVEL ARRANGEMENTS. REIMBURSEMENT IS ON A RECEIPT BASIS.

NAVAL FINANCE CENTER (NFC) CLEVELAND, OHIO, STOPS STIPEND DURING ACDUTRA.

DO NOT BUY A UNIFORM BEFORE FIRST ACDUTRA. REPORT IN JACKET AND TIE. UNIFORM INFORMATION GIVEN AFTER YOU REPORT.

YOUR SERVICE DESIGNATOR IS ENSIGN 1975

SOCIAL SECURITY NUMBER

ON JULY 1, 1976, AT 8 AM, REPORT TO THE SPECIFIED COMMAND

ACCOUNTING INFORMATION

PHYSICAL EXAM IS NECESSARY TO REPORT FOR ACDUTRA

HAVE THE OFFICER OF THE DECK (OOD) SIGN YOUR ORDERS ON ARRIVAL

LIVING EXPENSES (PER DIEM) AUTHORIZED UP TO THIS AMOUNT. REIMBURSEMENT IS ON A RECEIPT BASIS. YOU ARE NOT ELIGIBLE IF BACHELOR OFFICER QUARTERS (BOQ) ARE AVAILABLE.

ACDUTRA ORDERS (formerly NAVPERS 1571/5 (2-73)/ NAVRES 1571/5 (10-75) NAVCOMPT 2120 (Rev. 3-72)		DATE:	
COMMANDING OFFICER: NAVAL HEALTH SCIENCES EDUCATION AND TRAINING COMMAND, NATNAVMEDCEN, BETHESDA, MARYLAND 20014		PAN:	SON:
UNIT ATTACHED AND LOCATION: NHSETC, NNMC-BETHESDA, MD 20014		00	N341167TTOH
GRADE/RATE/NAME AND OFFICIAL ADDRESS:		COMMAND DELIVERING ORDERS (if other than originator)	
ENS. JOHN H. DOE 123 STAR DRIVE PHILA., PA. 19147		PAY GRADE/PEBD:	DESIGNATOR/NEC:
		01*	1975
		SSN:	031-77-777
		SECURITY CLEARANCE (based on date)	
ANNUAL ACDUTRA:		PAY GROUP:	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
MOB BILLET (Officers Only)			
1. Report to THE NEAREST ARMED FORCES ACTIVITY FOR CERTIFICATION for physical examination, including flight physical when active duty for training (ACDUTRA) involves flying, not more than 30 days prior to ACDUTRA reporting date. If found not physically qualified these orders are cancelled.			
2. NO. OF DAYS:		REPORT (Date) NO LATER (Time)	
<input checked="" type="checkbox"/> WITH PAY <input type="checkbox"/> DIFOT AUTH: (Officers Only)		01 JULY 76 0800	
<input type="checkbox"/> WITHOUT PAY (Enlisted Only)			
ACDUTRA LASTS 45 DAYS			
REPORT TO:			
COMMANDING OFFICER, NAVAL REGIONAL MEDICAL CENTER, CHARLESTON, SOUTH CAROLINA 29403			
DETACH ON 15 AUGUST 1976.			
SEE ATTACHMENT FOR TRAVEL INSTRUCTIONS AND REQUIREMENTS FOR PHYSICAL EXAM (PHYSICAL EXAM TO BE CONDUCTED IN ACCORDANCE WITH CHAPTER 8, AR 40-501. IF THESE ORDERS ARE FOR 14 DAYS, TRAINING ACTIVITY WILL EFFECT DETACHMENT TO ENSURE COMPLETION OF 14 DAYS ACDUTRA EXCLUSIVE OF TRAVEL TIME, UPON COMPLETION OF ACDUTRA RETURN TO THE PLACE TO WHICH THE ORDERS ARE ADDRESSED)			
3. Failure to comply with these orders without prior cancellation by competent authority may result in disciplinary action and/or administrative action affecting your status in the Naval Reserve.			
4. You will be in a duty status for the no. of days of ACDUTRA performed plus the time necessary to travel to and from your duty station not in excess of the allowable constructive time as prescribed in Joint Travel Regulations. While in a duty status you are subject to the Uniform Code of Military Justice.			
5. Auth: to travel by commercial transport (TR's and meal tickets furnished) Directed to travel by government conveyance when available.			
<input checked="" type="checkbox"/> XXXX Authorized to travel at your own expense subject to reimbursement. Authorized to travel at your own expense NOT subject to reimbursement.			
6. If these orders are without pay, you are entitled to allowances for subsistence and quarters. NOTE: If these orders do not provide for pay, travel reimbursement, and allowances and you do not desire to bear this expense, the orders are revoked.			
7. MEMBER IS <input type="checkbox"/> IS NOT <input type="checkbox"/> ENTITLED TO BAQ WITH DEPENDENTS.			
8. COST OF TRAINING IS CHARGEABLE AS FOLLOWS: PAY/ALLOWANCES			
17T1405 2232 000 34116 1 000168 2D 000000 71770000X44T			
TRAVEL 74770000X44T			
UNIFORM: 72770000X44T			
PER DIEM 74771000X44T			
TRANSPORTATION AND MEAL TICKETS FURNISHED			
*PL 92-426 PERMITS PAYMENT OF O1 ONLY.			
ESTIMATED TRAVEL: \$150 ESTIMATED PER DIEM: \$1485.			
FOR NFC CLEVELAND - STOP STIPEND ON 30 JUN 1976			
START STIPEND ON 16 AUG 1976			
THE WEARING OF THE UNIFORM IS REQUIRED			
SIGNATURE OF ISSUING OFFICER		G. S. BAKER LTJG MSC USNR BY DIRECTION OF THE COMMANDING OFFICER	
SIGNATURE OF MEDICAL OFFICER			
SIGNATURE OF MEDICAL OFFICER			
SIGNATURE OF COMMANDING OFFICER			
SIGNATURE OF COMMANDING OFFICER			
SIGNATURE OF DISBURSING OFFICER			
VOUCHER NO.		D.O. SYMBOL NO.	
DATE:		NET AMOUNT PAID	

Annotated Active Duty for Training Orders

Notes & Announcements

Dental continuing education courses . . . The following dental continuing education courses will be offered in September 1978:

U.S. Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C.

Current Concepts of Restorative Dentistry 11-14 Sept 1978

Letterman Army Medical Center, San Francisco, Calif.

Removable Prosthodontics 18-21 Sept 1978

The *National Naval Dental Center*, Bethesda, Md. 20014, has scheduled the following continuing education courses for the academic year 1978-1979:

Operative Dentistry	2-4 Oct 1978
Oral Surgery	16-18 Oct 1978
Oral Diagnosis and Treatment Planning	30 Oct-1 Nov 1978
Preventive Dentistry and Patient Motivation	13-16 Nov 1978
Endodontics	4-6 Dec 1978
Comprehensive Dentistry	11-14 Dec 1978
Oral Pathology	8-12 Jan 1979
Removable Partial Dentures	22-24 Jan 1979
Periodontics	5-7 Feb 1979
Fixed Partial Dentures	26-28 Feb 1979
Complete Dentures	12-15 Mar 1979
Occlusion	2-4 Apr 1979
Fleet and Marine Support Operational Management Seminar	16-20 Apr 1979
Maxillofacial Prosthetics	30 Apr-2 May 1979

The Director, Dental Activities, Eleventh Naval District, has scheduled the following continuing education courses for 1978-1979 at the *Naval Regional Dental Center*, San Diego, Calif. 92136:

Oral Diagnosis	2-4 Oct 1978
Endodontics	16-18 Oct 1978
Operative Dentistry	6-8 Nov 1978
Fixed Partial Dentures	4-6 Dec 1978
Removable Partial Dentures	8-10 Jan 1979
Oral Pathology	22-26 Jan 1979
Maxillofacial Prosthetics	29-31 Jan 1979
Complete Dentures	20-22 Feb 1979
Occlusion	12-14 Mar 1979
Oral Surgery	2-6 Apr 1979
Preventive Dentistry and Patient Motivation	23-26 Apr 1979
Periodontics	14-16 May 1979

All continuing education courses sponsored by the Dental Division, Bureau of Medicine and Surgery, are approved for dental relicensure credit with the Board of Dental Examiners for the following states: California, Iowa, Kansas, Kentucky, Massachusetts, Minnesota, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota.

Requests for courses administered by the Commandant, Eleventh Naval District, should be submitted to: Commandant, Eleventh Naval District (Code 37), San Diego, Calif. 92132. Applications for other dental continuing education courses should be submitted to: Commanding Officer, Naval Health Sciences Education and Training Command (Code 5), National Naval Medical Center, Bethesda, Md. 20014. Applications should arrive six weeks before the course begins.

Continuing education for Navy nurses . . . The Naval Health Sciences Education and Training Command will sponsor the following continuing education course for Navy nurses:

Alcoholism, the Problem, its Ramifications, and Treatment
(18 contact hours)

17-19 Sept 1978

NRMC Long Beach, Calif.

It is estimated that 50% of hospitalized patients have alcohol-related illnesses. This three-day program for general staff nurses will provide a basic knowledge of alcoholism and behavioral aspects of the alcoholic; the nurse's role in recognizing the condition when it is an underlying factor in other medical problems; and alcoholism's impact on the individual, his family, and the community. The nurse will compare treatment modalities and resources for rehabilitation.

The course is open to Nurse Corps officers not currently assigned to an overseas billet. However, nurses assigned to Argentina, Newfoundland; Bermuda; Guantanamo Bay, Cuba; Keflavik, Iceland; and Roosevelt Roads, Puerto Rico, who have served at least six months on active duty, may apply. The course is also open on a space-available basis to Nurse Corps officers of the inactive Reserve.

Nurse Corps officers wishing to attend the course should apply to the Naval Health Sciences Education and Training Command (Code 7), National Naval Medical Center, Bethesda, Md. 20014, following procedures set forth in the BUMED Instruction 4651.1 series. Applications should be submitted four to six weeks before a course begins.

Lab animals pathology course . . . The Armed Forces Institute of Pathology (AFIP) will offer a Pathology of Laboratory Animals course 11-15 Sept 1978 in Washington, D.C. Military and federal service employees in the veterinary field and other medical science fields are requested to consult their agency regulations for appro-

priate application procedures. Civilian veterinarians and allied scientists are invited to apply and will be considered on a space-available basis. Nonfederal and foreign national registrants are required to pay a \$125 fee, payable to the Treasurer of the United States.

Applications should be submitted before 8 Aug 1978 to: The Director, Armed Forces Institute of Pathology, ATTN: AFIP-EDZ, Washington, D.C. 20306.

Health care administration class graduates . . . Thirty-two Medical Service Corps officers and two Coast Guard warrant officers graduated from the Naval School of Health Care Administration, NNMC, Bethesda, Md., on 1 June 1978. The ceremony marked the 39th consecutive year of the health care administration program and the 6th year of direct affiliation with The George Washington University's Department of Health Care Administration.

The Surgeon General's Award for Scholastic Achievement was awarded to LTJG Stephen C. Rice (MSC), who completed the program with a 4.0 cumulative average. LT Layton O. Harmon (MSC), nominated by both staff and students, was selected for outstanding military leadership and was presented the Commanding Officer's Award.

Colon and rectal surgery symposium . . . A symposium on "Colon and Rectal Surgery" will be held 27-29 Sept 1978 at the National Naval Medical Center. For details write to: Administrative Assistant, Department of Surgery, National Naval Medical Center, Bethesda, Md. 20014.

Joint conference on occupational health . . . The American Academy of Occupational Medicine (AAOM) and the American Academy of Industrial Hygiene (AAIH) will hold a joint conference 19-22 Sept 1978 at the Williamsburg Lodge, Williamsburg, Va. More than 500 occupational physicians, industrial hygienists and other professionals interested in the health of workers will attend the meeting, which will focus upon aspects of medical-record keeping and surveillance important to the occupational health field. Representatives from medicine, government, industry, and academia will present their viewpoints on "Significance of Data Collection," "Basic Concepts of Data Collection," "Mandatory Environmental and Medical Monitoring: Essential?," "Special Problems in Performing Occupational

Epidemiology Studies" and "Epidemiology."

The regular scientific sessions on 20-22 Sept 1978 will be preceded by two postgraduate seminars on 19 Sept 1978. The topics will be "Basic Computer Science Techniques for Occupational Health Physicians and Industrial Hygienists" and "Basic Concepts in Epidemiology for Occupational Health Physicians and Industrial Hygienists."

Registration fees for the joint conference will be \$35 for AAOM and AAIH members and \$45 for nonmembers. Postgraduate seminar fees will be \$60 per seminar for AAOM and AAIH members and \$80 for nonmembers.

Members of AAOM and AAIH will receive advance programs through the mail. Nonmembers may obtain advance programs and registration information by writing to: American Academy of Occupational Medicine, 150 North Wacker Drive, Chicago, Ill. 60606.

Maxillofacial-injury text . . . An estimated 10%-15% of war wounds involve the highly complex maxillofacial area. Yet, when the Vietnam conflict began, oral surgeons had available to them no contemporary single-source document on management of jaw-injured patients.

A new book from the Dental Sciences Department of the Naval Medical Research Institute is designed to fill that gap. *Management of War Injuries to the Jaws and Related Structures*, edited by CAPT James F. Kelly (DC), is based on a 10-year survey of selected Vietnam wounded who were followed through all phases of casualty care: early treatment in Vietnam, intermediate care at facilities along medevac routes, and reconstructive-rehabilitative care at primary military hospitals and other federal or civilian facilities.

The book's conclusions are drawn both from the survey data and from the clinical experience of the contributors: oral surgeons who served aboard hospital ships and in military medical facilities in Vietnam and Guam during the period of conflict. "As a result," says the editor, "their experiences have been passed on to those surgeons who in the future will have to deal with the complicated and often tragic circumstances of war casualty treatment."

The 273-page book, profusely illustrated with drawings and color and black-and-white photographs, is available for \$12 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.



If your first deployment is in prospect, here's
a look at what you can expect from

Medical Practice at Sea

CDR Leslie C. Ellwood, MC, USN

HMC Ronald B. Littlejohn, USN

What knowledge and technical skills are required of a physician assigned to a deployed U.S. Navy ship?

This is a question asked by all facing that duty. "Will I be able to

handle it?" is the unvoiced fear or most.

Those who have completed their sea tour will reassure you, and this report will provide some data, from one ship's experience, on which to base that reassurance.

The ship is the USS *Inchon* (LPH-12), an amphibious assault helicopter carrier, and during the five-month period this report covers (15 April to 15 September 1977), she was deployed in the Mediterranean Sea.

Three major units were assigned to the *Inchon*: the ship's company,

Marine Battalion Landing Team 2/6 (BLT 2/6) companies, and Helicopter Marine Medium Squadron 261 (HMM-261). The ship's company numbered 610 men, the Marine detachments 848, for a total of 1,458. The *Inchon*'s Medical Department also provided medical care for sailors and marines aboard other amphibious squadron ships that had no medical officers.

Our Medical Department staff included a single-manager TAD physician as ship's GMO and Medical Department head, a flight surgeon with HMM-261, and a Marine bat-

CDR Ellwood was assigned to the USS *Inchon* (LPH-12) for four months of Mediterranean deployment. His usual assignment is as pediatrician, VADM Joel T. Boone Clinics, NRMCC Portsmouth, Va. 23718. HMC Littlejohn, a medical services technician, is Senior Hospital Corpsman Chief of the *Inchon* and Medical Department representative in the absence of an assigned medical officer.

TABLE 1. Summary of Medical Services Provided

Medical Service	Source of Data	Population Base	Number per 100 men per month*
Clinic visits	Navy health records	300	72.0
	<i>Inchon</i> monthly statistics	1,458	67.0
New illnesses	Navy health records	300	46.0
Inpatient admissions	Inpatient admissions of men from USS <i>Inchon</i>	610 (Navy)	0.5 (Navy)
		848 (USMC)	0.6 (USMC)
Acute surgical or trauma admissions	Inpatient records of men from USS <i>Inchon</i>	610 (Navy)	0.1 (Navy)
		848 (USMC)	0.2 (USMC)
Medical and NP admissions	Inpatient records of men from USS <i>Inchon</i>	610 (Navy)	0.4 (Navy)
		848 (USMC)	0.4 (USMC)
Medevac or transfer to shore facility	Inpatient records of men from USS <i>Inchon</i>	610 (Navy)	0.25 (Navy)
		848 (USMC)	0.2 (USMC)
Prescriptions	Total prescriptions issued	1,458	57.0
X-ray procedures	Total procedures	1,458	8.0
Lab procedures	Total procedures	1,458	25.0
Venereal disease treatment	Penicillin injection usage	1,458	0.6

*Statistics allow for application to other deployed ships.

talion surgeon. Hospital Corps personnel numbered 11 for the ship's company, 20 for the BLT 2/6 companies, and 2 for the helicopter squadron. There were also 2 dental officers and 3 dental technicians.

An LPH has medical evacuation as one of its potential missions; therefore, the facilities and equipment can provide a broad range of medical services. The medical spaces include two surgery rooms (usually used as sick-call treatment areas); an X-ray unit that can provide all routine radiological views; a laboratory (capable of CBCs, urinalyses, cultures and sensitivity, darkfield exams, and RPR, Monospot, NA, K, glucose, BUN, bilirubin, and SGOT determinations); and a 20-bed ward. (An additional 66 beds are available if medical evacuation is ever required.)

Special equipment available to us included an EKG and a Lifepak^R resuscitator, physiotherapy tanks, two orthopedic beds, eye refraction equipment, and most major and minor surgical packs. In addition,

the most commonly used pharmaceuticals, intravenous solutions, and parenteral medications were stocked.

Medical services provided aboard the *Inchon* during the five-month period are summarized in Table 1. A review of medical charts on the 72 patients admitted to the medical ward during the period provided inpatient data for this study. Outpatient data and population statistics were derived from a review of the military health records of 300, or 50%, of the ship's company (every other record in the file was selected for review). Other data came from the Medical Services and Outpatient Morbidity Report, NAVMED 6300/1 (6-61), which provides monthly patient care statistics.

The composition of the ship's company was 67% E-1 to E-4, 26% E-5 to E-9, and 7% commissioned and chief warrant officers. The average age of the 300 crewmembers whose health records were reviewed was 23.8 years, with a range of 17 to 52 years, and 53.3% were between

17 and 21. Population statistics for the embarked Marines were not obtained.

In Table 1, the total figures for medical services required by the Navy crew and embarked Marines have been reduced to a common factor: number of services provided, per 100 men aboard, per month. The source from which the data is derived and the population on which the calculation is based are noted in the table's third and fourth columns.

From the monthly statistics reported on NAVMED 6300/1, we derived an average of 447 sick-call visits a month for Navy men and 536 visits for Marines. From our study of the 300 health records we found that sailors from this group made 1,100 clinic visits, with 697 different illnesses, during the five-month period. Projecting for the total of 610 Navy crewmembers, we would predict 440 visits per month by Navy personnel.

The Navy men averaged 1.6 visits for each illness. From the 300 health

records reviewed, we found that 18% of these men never visited the clinic in the five-month period studied; 15.3% made only one visit; 26.6% made two to three visits; and 40% made four or more. Age or rank made no significant difference in clinic usage rate.

The distribution of types of outpatient illnesses recorded in the 300 health records is reported in Table 2. Respiratory and ear complaints, trauma, and skin disorders were the most common problems and accounted for 64.6% of all outpatient illnesses. None of the fractures required more than closed reduction and casting; lacerations were all superficial. The majority of the illnesses were handled by the hospital corpsmen. The physicians performed physical examinations; handled cases for which X-rays, antibiotics, or controlled drugs were indicated; and cared for patients with more severe illnesses or injuries, with chronic or recurring problems, and with need for psychological counseling.

Seventy-two patients were admitted to the *Inchon*'s medical ward during the five-month period: 16 Navy crewmembers and 26 Marines from the *Inchon*, 8 men from NATO Forces temporarily assigned to the *Inchon*, and 22 sailors and Marines, from other ships. Seventy-six percent of the men admitted were under 23 years of age; 77% were E-4 or under in rank.

Table 3 summarizes inpatient experience during the five-month period studied. None of the physicians assigned to the *Inchon* during this period performed elective major surgery, but surgeons assigned to other LPHs reportedly have chosen to do so. One appendectomy, under spinal anesthesia, was performed by LT Braden, MC, USNR, the HMM-261 flight surgeon, and LT Carron, MC, USNR, from the USS *Seattle*.

Admissions to the *Inchon*'s medical ward were often determined by factors other than medical indication. In several cases, men from crowded berthing spaces could

TABLE 2. Distribution of Outpatient Illnesses During 5-Month Deployment

Illness Category		Percentage of New Illnesses
Respiratory and ear complaints		27.5
Acute orthopedic complaints (sprains, bursitis, tendinitis, low back pain, muscle strain, fracture)	15.4	24.8
Lacerations requiring suture	5.1	
Soft tissue trauma (abrasions, contusions, burns)	4.3	
Skin disorders (nonspecific rashes, scabies, eczema, tinea, acne)		12.3
Psychological counseling and substance abuse		7.0
Gastrointestinal complaints		6.8
Physical examinations (annual or special)		5.7
Genitourinary complaints (includes NSU)		4.0
Eye complaints and routine refractions		3.7
Superficial cellulitis and abscess		3.4
Chronic orthopedic and non-acute surgical problems		2.3
Headaches or concussion		1.9
Venereal disease (syphilis and gonorrhea)		0.6

more easily receive necessary treatment as inpatients than as outpatients, and men with chronic medical-surgical or neuropsychiatric problems were admitted to facilitate medevac or transfer to shore facilities.

Forty-nine of the 72 admitted patients, or 68%, were returned to duty with their respective units upon discharge. The rest underwent medevac or were transferred to shore medical facilities in the Mediterranean or in Germany. Inpatient length-of-stay (LOS) averaged 3.5 days for all admissions and 3.8 days for medevac and transfer patients. LOS was 3.0 days for those medevac patients who eventually needed emergency medical facility services, but no complications resulted from the delays in transfer.

Forty-seven Navy and Marine Corps members were treated on an outpatient basis for venereal disease (including primary syphilis, gonorrhea, lymphogranuloma venereum, and nonspecific urethritis). The recommended treatment regimen was followed in each case, and

no penicillin-resistant strains of *Neisseria gonorrhoeae* were noted. Contact interviews and reporting were done by a senior hospital corpsman.

Although the potential for medical crisis aboard deployed ships always exists, medical practice during this deployment most often involved commonplace illnesses well within the competence of most Navy clinical physicians. Traumatic injury is common as a result of work environment, but injuries are rarely serious or life threatening. The amount of surgery performed is determined solely by the individual desire of the physicians. Medical evacuation is available for patients who require care beyond the ship's capabilities or the physicians' skills. Although the medevac system seems slow to the concerned physician at sea, most patients will tolerate the delays if general principles of supportive care are followed.

The orientation courses for prospective ship's doctors emphasize sanitation, pest control, and the

TABLE 3. Inpatient Experience During 5-Month Deployment

Diagnosis	Total	Percentage	Comments
Acute trauma	19	26.4	7 orthopedic; 7 severe lacerations; 3 head trauma; 2 burns
Medical illnesses	19	26.4	9 respiratory; 6 gastrointestinal; 2 oxygen toxicity; 1 genitourinary; 1 myocardial infarction
Surgical problems	11	15.2	3 acute appendicitis (2 medevac; 1 appendectomy performed on <i>Inchon</i>); 5 chronic surgical admitted for medevac; 2 pilonidal cysts drained; 1 pneumothorax required chest tube
Superficial skin or lymphatic infection	9	12.5	
Neuropsychiatric	14	19.4	Admitted for medevac or transfer to shore facility

preventive aspects of sea medicine. These are indeed important elements of the medical officer's duties, and you must be knowledgeable about them; however, much of the actual performance of these duties can be delegated to properly trained Hospital Corps staff. The major responsibilities of the medical officer are supervision for quality control and the communication or interpretation of findings to other ship's departments—or to Command—so that they will take appropriate preventive or corrective action.

Several other areas of concern occupied significant amounts of the *Inchon* medical officers' time. These included substance abuse, psychological counseling, and education.

Drug abuse during liberty and while at sea is a problem for all Navy ships. During the deployment under discussion, the Mediterranean ports provided a constantly accessible source of Quaalude, amphetamines, Valium, marijuana, and hashish. These drugs were used by a significant proportion of younger crewmembers (E-4 and below).

Most of the chronic drug abusers

exhibited immature, inadequate, and passive-aggressive personalities. Almost all admitted using drugs before their enlistment (though they did not report this at the time of enlistment), and most came from families in which communication and satisfaction of emotional needs were poor. Prior to their eventual identification as drug abusers, most of these servicemen had made repeated visits to sickbay with numerous psychosomatic complaints and had been reported by their departments to be poor performers at work.

While drug counseling was available at the Human Resources Management Detachment in Naples and at the Counseling and Assistance Center at Rota, effective treatment required the personal interest and efforts of our medical officers and hospital corpsmen in diagnosis, counseling, and administrative preparations for referral. Knowledge of adolescent psychology was beneficial.

Despite constant admonitions, risk of liberty restrictions, and disciplinary actions, alcohol abuse was a problem during liberty or work port visits. The Medical Depart-

ment was involved in repair of injuries sustained by intoxicated servicemen, examinations for confinement of the violent drunk, ward admissions of the near comatose, administration of medication to the agitated drunk, and testimony on medical observations at disciplinary masts.

It was the practice of the *Inchon* Medical Department to note in the health record all instances of alcohol abuse (by enlisted men and officers) brought to our attention. When followup interview or counseling indicated problem drinking or possible alcoholism, this fact, and a recommendation for the appropriate level of alcohol counseling or therapy, was reported in a memorandum to the patient's command.

An Alcohol Rehabilitation Unit was available at NRMN Naples, and an Alcohol Rehabilitation Drydock at Rota accepted men for briefer therapy. For patients who were followed closely by the Medical Department with counseling, CODAC referral, and antabuse, therapy was delayed for CONUS centers at the end of deployment.

We found that a large percentage of sick-call complaints were psychosomatic. The stresses of shipboard life and work, aggravated by deployment separations and immature personalities, take their toll, and the Medical Department is a place where grievances can be aired. Rarely, however, do young servicemen report psychological stresses unless the corpsman or doctor looks beyond the presenting complaint. Medical Department personnel with an inclination to listen, counsel, and intercede for these troubled men can perform a significant service to morale.

Education, both for hospital corpsmen and the ship's crew, is another task that demands much attention from medical officers. The ship's training requirements assign to the Medical Department such topics as nuclear, biological and chemical warfare decontamination, first-aid and casualty evacuation, preventive health measures, and

venereal disease. Medical officers with special interests and skills are allowed to provide any additional training they desire.

Means available to us for providing medical information to the crew included closed-circuit television lectures, group lectures by corpsmen or physicians, and the ship's Plan of the Day (we had a daily "Doc's Advice" entry in the POS).

An inservice educational program for Hospital Corps personnel is essential to maintain and broaden their skills. The chief petty officers,

independent duty corpsmen, and Hospital Corps technicians can share their specific knowledge for the benefit of the general duty corpsmen and themselves. The medical officers also provide instruction in general medicine and their specific areas of expertise.

An assignment as medical officer of a deployed Navy ship is within the competence of most clinical Navy physicians.

Although "surgical skills" are usually thought to be the most de-

sirable, the abilities required during this deployment were primarily minor surgical skills, general outpatient medicine, routine inpatient care, psychological counseling, and an understanding of preventive health measures.

In numerous areas, concerned, hard-working physicians and hospital corpsmen can contribute to better physical and mental health aboard ship. The deployment experience, in turn, will broaden and enrich each physician so that he becomes a better Navy doctor.

Shipboard Medicine: 'An Ounce of Prevention . . .'

Days lost from duty because of illness or accident result in the impaired operational effectiveness of naval units, just as sick days result in production losses in industrial settings. A high standard of medical care, including active prevention, is an essential element in sustaining crew effectiveness. Such prevention, in turn, depends on the identification of situational factors that lead to increased morbidity.

In "Morbidity as a factor in the operational effectiveness of combat ships," published in the August 1977 issue of *Military Medicine*, J.M. Erickson, L.M. Dean, and E.K.E. Gunderson report on efforts to determine causal factors of illness on combat ships. In a study of shipboard illness, research staff of the Naval Health Research Center, San Diego, boarded five destroyer escorts early in their deployments to the Western Pacific to investigate these factors.

Specially designed individual data cards were used to record all sick-call visits for the length of the deployment. The purpose of the card was to obtain better standardization and a more complete recording of each illness episode than was possible with routine reporting procedures. The specific conditions or illness categories on the card were identical to those used on the Monthly Outpatient Morbidity Report submitted to BUMED by all ships. This format was chosen because hospital corpsmen are familiar with the illness categories and because use of the cards would facilitate preparation of the Monthly Outpatient Report and serve as an incentive for accurate recording.

When illness episodes were analyzed, trauma and gastrointestinal disorders accounted for a substantial number of the days lost during deployment. It was found that gastrointestinal infections were most likely to occur when ships were in port. Accidents and trauma were likely to occur any time, at sea or in port.

There tended to be large differences in trauma rates between petty officer and non-rated groups. Lower-rated men, inexperienced in their jobs and unfamiliar with the shipboard environment, had many more injuries than petty officers, particularly in the first quarter of the deployment.

The incidence rate for gastrointestinal disorders for non-rated men was only slightly higher overall than that for rated men, and there were no consistent differences between quarters of deployment. Thus, pay grade or experience was an important factor in trauma but a negligible factor in GI disorders.

The incidence of gastrointestinal disorders was found to be primarily a function of specific ports visited. Examination of GI illness rates during and immediately following visits to Western Pacific ports indicated that two ports presented relatively high risks for GI disorders. For example, one ship had a total of 52 initial dispensary visits for gastrointestinal illness after visiting one of these ports. Two officers, 10 petty officers, and more than 20 enlisted men were placed on the disabled list. It is clear that this ship was forced to operate at a decreased level of effectiveness for a short period because of the GI epidemic experienced in this port.

In order to plan adequate medical support for fleet operations, a forecast model for casualties during operational deployments appears essential. The Naval Health Research Center is currently developing such a model, designed to help commanding officers and medical personnel be alert to environmental and operational conditions that might adversely affect crewmembers and thus impair ship effectiveness.

For a reprint of the original article on morbidity and operational effectiveness, write: E.K. Eric Gunderson, Ph.D., Naval Health Research Center, San Diego, CA 92152.

NAVMED Newsmakers

HM2 **Elizabeth R. Burkhart** has been a winner from the beginning of her naval career. This spring, she capped a series of honors by winning BUMED's nomination for the CNO's Shore Sailor of the Year competition.

Petty Officer Burkhart, a 1971 graduate of California State University with a B.A. in physical education, enlisted in the Navy in January 1973. Chosen Recruit Chief Petty Officer by her company commander, she graduated from recruit training with the American Spirit Honor Medal and was selected Honor Woman of her company.

In Hospital Corps "A" School at Great Lakes, Ill., she was Wave Platoon Leader of her company and graduated in the top 25% of her class. She was subsequently assigned to Naval Hospital Orlando, Fla., where she was chosen Sailor of the Month for both the hospital and the Naval Training Center, and Sailor of the Year (1974) for the hospital.

In April 1975, Petty Officer Burkhart was transferred to the Naval Communications Station in Adak, Alaska, where, in off-duty hours, she pursued her sports interests as a member of the Adak Volleyball Team. The team won the 13th Naval District Championship in 1976 and traveled to Long Beach, Calif., for the All-Navy Championship. HM2 Burkhart was selected that year for both the All-Navy and All-Service teams.

In spring 1976, Petty Officer Burkhart began duty with the Patient Affairs Service at NRMCLong Beach, where she was named Sailor of the Quarter and Sailor of the Year in 1977. In February of this year, she picked up her second degree—a B.S. in health care services earned through Southern Illinois University. In her spare time,

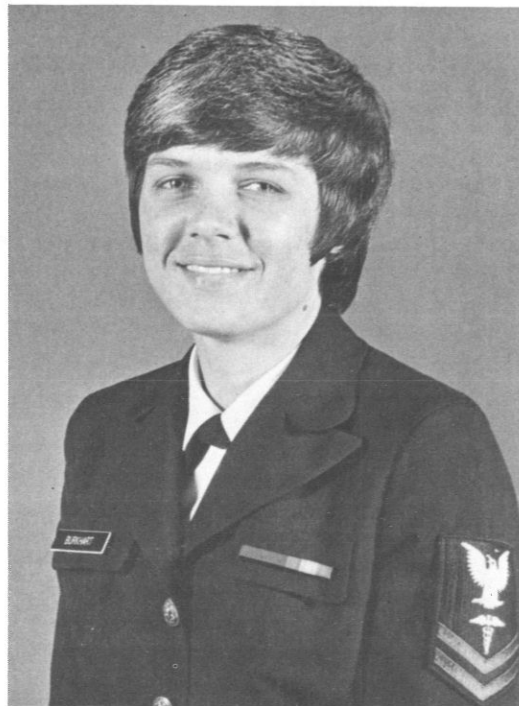
she works with handicapped children in Orange County, Calif.

Says her commanding officer: "The honors garnered by this exceptional individual attest to her desire for achievement and improvement. . . . Her personal attitude of caring and sharing has a positive effect on all personnel and enhances the spirit of cooperation prevalent in her area. Petty Officer Burkhart is an unparalleled professional, to whom excellence is not a goal, but a personal fiat."

There's little anyone can add to that except congratulations—and a hearty 'well done.'

More honors: Hospital Corpsman **William Bethards** was the Medical Department member of a four-man search-and-rescue team from NAS Lemoore recently awarded medals, on behalf of President Carter, for "heroic achievement in aerial flight." The recognition resulted from a helicopter operation that plucked two injured climbers from a 13,000-foot-high ledge in the Sierra Nevada . . . The Medical/Dental Department of the USS *Independ-*

Okinawa's Sailor of the year



BUMED's Shore Sailor nominee

ence (CV-62) was one of three departments aboard the aircraft carrier to win a Battle Efficiency Award, after stiff competition with other Atlantic-based carriers . . . HM1 **Allen E. Kasperbauer**, of NRMCLong Beach, has been selected Okinawa's Sailor of the Year for 1977, after competing with candidates from all the island's other naval commands . . . CAPT **Robert E. Cassidy** (DC) was named a "Citizen of the Year" by the Ohio State University Alumni Association . . . CDR **Clarence H. Spence** (MC) received an Alumni Merit Award from Marquette University . . . And, at the annual meeting of the Undersea Medical Society, CAPT **William H. Spaur** (MC) and CDR **Edward T. Flynn, Jr.** (MC), were joint recipients of the Oceaneering International Award in recognition of their contributions to diving medicine.

Career Pathways for Nurse Corps Officers

Professional patterns are changing, but success still hinges on performance and initiative

CDR Ann Langley, NC, USN, Nursing Division, BUMED

Historically, the Nurse Corps has been a community of generalists. "Career development" traditionally has meant serving in the widest possible variety of assignments, to prepare for senior-level administrative positions with broad responsibility.

While some generalists are still necessary, times are changing, and the Nurse Corps is adapting to the changes in health-care delivery. As a result of the information explosion and the growing sophistication of patient care, there is increased need for experienced Nurse Corps officers with expertise in clinical specialties and education as well as in administration.

In recognition of the changing roles of nurses in Medical Department facilities, and of increasing specialization within the nursing profession, the Navy's classification system has been revised and expanded to describe more accurately the practice of professional nursing in today's Navy. All Nurse Corps officers have now been assigned subspecialty codes reflecting their educational background and experience. Similarly, billet requirements have been revised to reflect the level of education and experience

required as well as the functions to be performed.

Figure 1 illustrates the professional development patterns envisioned for Nurse Corps officers. As indicated, Nurse Corps officers will continue to be assigned primarily to staff nurse and charge nurse positions in a variety of settings during their first few years of active duty. This will not only give the officer a broad base in nursing but will also provide the opportunity for exposure to many of the potential career options available.

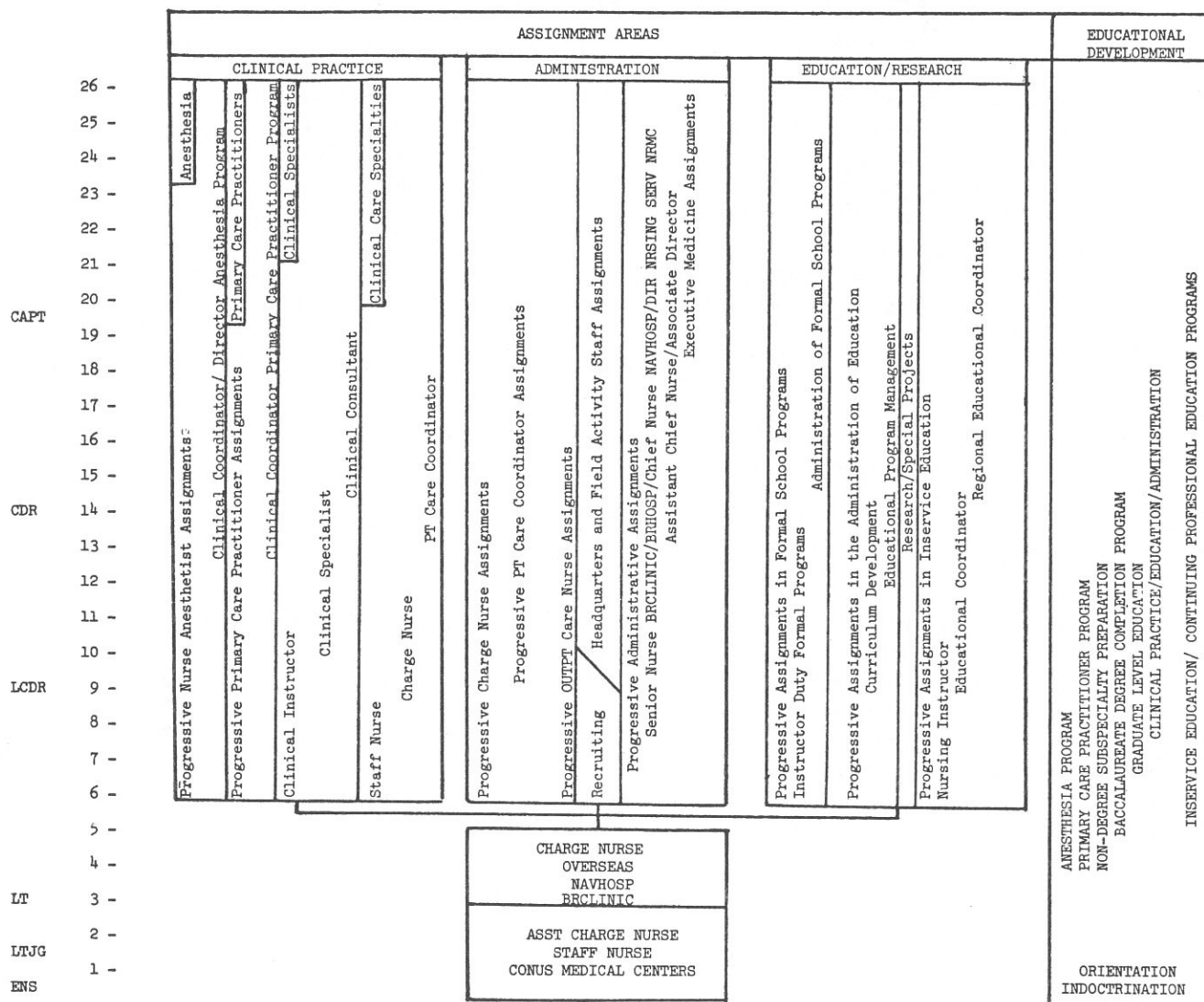
After that point, Nurse Corps requirements fall into three major categories: clinical practice, administration, and education and research. While some specialization will be necessary, a great deal of opportunity will still exist for lateral transfer among the three major assignment areas. For example, progressive assignments as staff nurse, charge nurse, and patient care coordinator can lead an officer into advanced clinical practice, into administration, or (after a preparatory assignment as an instructor) into a billet as an educational coordinator. The assignments in each pathway provide progressive responsibility and professional growth.

Promotion opportunities are equal in each pathway. Examples of the types of positions available in each major assignment area are listed in Figure 1. The assignments shown are not all-inclusive, and your assignment to a particular position may not occur at the exact point in time indicated on the chart. The chart simply illustrates the general progression of assignments and promotion that can be expected.

Figures 2 through 7 are examples of representative assignments within the three career development pathways. Many varied combinations of assignment are possible within each career pathway, and many opportunities exist to "change course" at different points along the way. You must remember, though, that if you change course you may have to acquire additional experience to prepare you for the responsibilities ordinarily assigned to someone of your grade and time in service in the new career pathway you select.

The educational resources available to the Nurse Corps are used to give individual officers the preparation they need to fulfill Navy requirements. The column on the far right of Figure 1 shows the educa-

FIGURE 1. Nurse Corps Officer Professional Development Path



tional programs available. All Nurse Corps officers receive officer indoctrination training and basic orientation to the hospital initially, and inservice and continuing education throughout their Navy careers. Selection for other programs is dependent on performance, experience, the needs of the Navy, and the availability of funds. There are no hard-and-fast rules governing the

timing of the various programs. The "right time" to consider advanced education will depend on your experience and your career goals.

Career development is a dynamic process, built on sound career counseling. And career counseling is a partnership—it is as much your responsibility to *seek* it as it is your seniors' responsibility to *provide* it.

Take an active role in your career

development. Success in the Navy Nurse Corps is not dependent on any single factor—not a graduate degree, not a particular specialty, not a specific combination of assignments. The one universal factor influencing a successful career is your performance as an individual and your ability to contribute effectively to the accomplishment of the mission of the Navy Nurse Corps.

CAREER PATHWAYS (continued)

FIGURE 2. Clinical Practice Example: Clinical Specialist in Medical/Surgical Nursing

Years of Service	Assignments
1 - 3	Staff nurse, NRMC
4 - 5	Charge nurse, overseas
6 - 8	Clinical instructor, NRMC
9 - 11	Charge nurse, ICU, NRMC
12 - 13	DUINS—MSN in medical/surgical nursing
14 - 16	Clinical specialist, NRMC
17 - 19	Clinical specialist, graduate teaching hospital
20 - 23	Senior clinical consultant, graduate teaching hospital

FIGURE 3. Clinical Practice Example: Nurse Anesthetist

Years of Service	Assignments
1 - 3	Staff nurse, NRMC
4 - 5	Anesthesia school
6 - 7	Staff CRNA, NRMC
8 - 9	Independent duty
10 - 12	Clinical instructor, anesthesia school
13 - 14	Senior CRNA, NAVHOSP
15 - 17	Clinical coordinator, anesthesia school
18 - 20	Senior CRNA, NRMC
21 - 24	Head, Nurse Corps Anesthesia School, HSETC

FIGURE 4. Administration Example

Years of Service	Assignments
1 - 3	Staff nurse, NRMC
4 - 5	Charge nurse, overseas
6 - 8	Nurse Corps recruiting
9 - 11	Outpatient care nurse, NRMC
12 - 13	DUINS—MSN in nursing service administration
14 - 16	Patient care coordinator, NRMC
17 - 18	Chief of nursing service, NAVHOSP
19 - 22	Staff, BUMED
23 - 25	Director of nursing services, NRMC

FIGURE 5. Administration Example

Years of Service	Assignments
1 - 3	Staff nurse, NRMC
4 - 5	Outpatient care nurse, BRCLINIC
6 - 8	Charge nurse, NRMC
9 - 10	Patient care coordinator, overseas
11 - 13	Patient care coordinator, NRMC
14 - 16	Senior nurse, BRHOSP
17 - 19	Associate director of nursing service, NRMC
20 - 22	Chief of nursing service, NAVHOSP
23 - 25	Director of nursing service, NRMC

FIGURE 6. Education and Research Example

Years of Service	Assignments
1 - 3	Staff nurse, NRMC
4 - 5	Charge nurse, overseas
6 - 8	Nursing instructor, Hospital Corps School
9 - 11	Nursing instructor, graduate teaching hospital
12 - 13	DUINS—MSN in nursing education
14 - 16	Nursing educational coordinator, NRMC
17 - 19	Regional educational coordinator, NRMC
20 - 23	Director, Nurse Corps Programs, HSETC

FIGURE 7. Education and Research Example

Years of Service	Assignments
1 - 3	Staff nurse, NRMC
4 - 5	Charge nurse, NAVHOSP
6 - 8	Nursing instructor, NRMC
9 - 11	Instructor, officer indoctrination school
12 - 13	Nursing educational coordinator, overseas
14 - 16	Curriculum development, HSETC
17 - 19	Senior nurse, Hospital Corps school
20 - 22	Regional educational coordinator, NRMC

Child Abuse as a Major Cause of Retardation

ENS Samuel B. Hester, USNR

In 1946, Caffey (1) first suggested that mistreatment of children by parents could be intentional. Interest in research in the area of child abuse gradually increased during the 1950's, and in 1962 Kempe et al. (2) introduced the term "battered child syndrome." The term was descriptive of characteristic fractures and subdural hematomas that appeared in X-rays at various stages of healing, indicating that they were sustained at different times, and seemed to be the result of force applied to the child's head, limbs, or body.

This discovery resulted in an explosion of interest and concern among physicians and government agencies. An enormous amount of research has since been done on child abuse and has resulted in some protective legislation. Radio and television programs and newspaper articles have been devoted to the problem. Nonetheless, the idea that child abuse may be significantly related to mental retardation has not been thoroughly investigated.

Robinson and Robinson (3) have stated that "child abuse is a widespread phenomenon and perhaps a major cause of retardation." Obviously, the fact that many children in this country are being abused should, in itself, be enough to persuade society to make a sustained, determined effort to prevent such occurrences. Often, however, only when a problem is viewed from the standpoint of dollars and cents will action be taken. Therefore, an attempt needs to be made to determine whether or not child abuse is a major cause of retardation. If so, the financial savings to society that would be gained from preventing child abuse, or at least decreasing its incidence, should be obvious.

Because of the absence of conclusive research, Brandwein (4) took a deductive-speculative approach to this problem. He addressed these questions:

- What is the incidence of child abuse?
- To what extent is child abuse associated with head trauma and brain damage?
- Are head trauma and brain damage related to mental retardation?

This paper will address itself to these same ques-

tions, in an attempt to corroborate and supplement Brandwein's speculations. In addition, it will address two important questions not discussed by Brandwein:

- If child abuse and retardation are causally related, are they also linked to poverty and lower socioeconomic status?
- Does cognitive impairment antedate abuse or is it one of its effects?

Incidence of child abuse

The actual incidence of child abuse is unknown. There are many reasons for the lack of reliable statistics—among them, differences in definition of the term, agency failure to report instances of abuse, and diminished likelihood that cases will be reported if the abuser is of sufficient income or status to be referred to a private practitioner rather than a public agency.

Almost all reported cases have this characteristic in common: the injuries were severe enough that several sources agreed abuse had occurred.

Available information strongly suggests that child abuse takes place far more frequently than one may naively imagine. Fontana (5) cites an editorial in *The Journal of the American Medical Association* which stated that maltreatment of children, if statistics were complete and available, could turn out to be a "more frequent cause of death than such well recognized and thoroughly studied diseases as leukemia, cystic fibrosis, and muscular dystrophy, and may even rank with automobile accidents and toxic and infectious encephalitis as causes of atypical disturbances of the central nervous system."

A text on the battered child by David Bakan (6) noted that at least 6% of physicians belonging to the Hawaii Medical Association witnessed cases of child abuse in a year. These figures, according to Bakan, suggest that "we are dealing with a major social problem."

According to Zalba (7), at least 200,000 to 250,000 children in the United States need protective services each year. Of these, 30,000 to 37,500 require protection from serious physical abuse.

Gil (8) describes a study conducted at Brandeis University by the National Opinion Research Center (NORC) that attempted to explain prevailing attitudes

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on physical child abuse in America and to obtain an indirect estimate of the scope of this phenomenon.

To determine incidence rates, respondents to the survey were asked whether they personally knew families that had been involved in incidents of child abuse, resulting in physical injury, during the 12 months preceding the interview. Forty-five respondents—3% of the 1,520 questioned—reported such personal knowledge. When sample proportions obtained in the survey were extrapolated to the total U.S. population, within a known margin of error, it was estimated that between 2.53 and 4.07 million cases of child abuse had occurred during the year ending in October 1965, resulting in injuries ranging from minimal to fatal. This is an estimated annual child abuse rate of 13.3 to 21.4 incidents per 1,000 persons. Obviously, however, it is a very rough estimate, having been obtained by an indirect method, the validity of which is unknown.

A text on the battered child edited by Helfer and Kempe (9) indicated that in 1967 tens of thousands of children in the United States were severely battered or killed, and that perhaps one or two children were being killed each day by their own parents. It was estimated that 15% of children under five years of age who are brought into hospital emergency rooms have been battered.

In a study of child-abusing parents that embraced a wide range of socioeconomic levels, Steele and Pollock (10) observed no concentration of cases in any one socioeconomic group. They reported:

If all the people we studied were gathered together, they would not seem much different than a group picked by stopping the first several dozen people one would meet on a downtown street in a random cross-section sample of the general population. They were from all socioeconomic strata, laborers, farmers, blue-collar workers, white-collar workers, and top professional people. Some were in poverty, some were relatively wealthy, but most were in between. They lived in large metropolitan areas, small towns, and in rural communities.

This finding is confirmed by Gil (8) and Fontana (5).

One can see that there is much disagreement as to the actual incidence of child abuse in the United States. Nevertheless, most sources agree that the rate of incidence is alarmingly high and that there appears to be no class monopoly on child abuse.

Head trauma and brain damage

Available research suggests that child abuse is definitely associated with head trauma and brain damage; however, the extent of this association is still a debated issue.

Kempe et al. (2) reported the results of a nationwide survey of hospitals and law enforcement agencies. Within a one-year period, 749 children were reported to have been abused. Of this number, 78 children died and 114 suffered permanent brain damage.

Kempe also indicated that the maltreatment of children was a particularly common problem in his hospital

at the University of Colorado School of Medicine. On a single day, he stated, the pediatric service there was caring for four infants suffering from parent-inflicted physical injuries.

Apthorp (11), at the Children's Hospital of Los Angeles, received 263 diagnosed cases of child abuse over an eight-year period. Of these children, 138 (approximately 53%) had suffered head trauma, and in 79 of these cases the trauma was considered major. Thirty-seven of these children had bilateral or unilateral subdural hematomas that resulted in brain damage.

Gregg and Elmer (12) investigated the question, Does cognitive impairment antedate abuse or is it one of its effects? They reported that none of the 30 abused children they studied had had physical defects that might have affected the quality of parental care.

They also compared these 30 abused children with 83 children who were thought to have had accidental injuries. Consideration of the behavior of these children included subjective assessment of mood, activity level, and distractibility. No significant differences were found. In fact, Gregg and Elmer suggested that the abused children appeared to be easier babies to care for. Martin (13) corroborates this finding.

The available literature suggests that child abuse is definitely associated with head trauma and brain damage. The literature has also attempted to demonstrate that when an abused child is diagnosed as having brain damage, the chances are that the neurological impairment is a result of, rather than a cause of, the physical abuse.

Trauma and mental retardation

Documenting the fact that brain damage can cause mental retardation is probably unnecessary. Thousands of severely and profoundly retarded individuals in institutions throughout the United States are sufficient testimony to this etiological relationship.

Martin (13) reported that 93% of the abused children in his study who were evaluated as retarded had a history of severe head trauma. Another interesting finding was that 75% of the abused children he studied who exhibited impaired speech and language delay were evaluated as having normal intelligence. This suggests that head trauma, even when it does not result in mental retardation, may contribute to language delay. Thus, head trauma and brain damage seem frequently to be apparent causes of both mental retardation and less aberrant forms of intellectual dysfunction, such as speech disorders.

Conclusion

Following this deductive approach, one might now conclude that child abuse may well be a very significant contributor to mental retardation. However, the question still exists: How many child abuse cases result in mental retardation annually?

In the absence of research that answers this question, one can only do as Brandwein (4) did, and speculate.

The NORC study on child abuse, carried out in 1965 and reported by Gil (8) in 1970, estimated that between 2.53 and 4.07 million cases of abuse had occurred during the one-year reporting period. An ultraconservative speculator will accept only one half of the lower estimate, or 1.27 million cases of abuse annually.

In the Kempe study (2), where 749 cases of abuse were reported in a nationwide survey, 78 of these cases resulted in death. Of the remaining 671, 114 cases, or 17%, involved permanent brain damage. Again being ultraconservative, we might accept half this percentage—or 8.5%—as an estimate of the percentage of child abuse cases that result in permanent brain damage. Applying this estimate to the 1.27 million annual cases of abuse arrived at above, we can hypothesize that 107,950 child abuse cases each year result in permanent brain damage.

Referring now to Martin's study (13), we find that more than 60% of the abused children who were diagnosed as having skull fracture, subdural hematoma, or neurologic sequelae were evaluated as retarded. Estimating conservatively again, and applying half that percentage rate—or 30%—to our estimate of 107,950 annual abuse cases resulting in permanent brain damage, we can hypothesize that 32,385 cases of child abuse result in mental retardation annually. This figure is probably an underestimate, considering the emotional and interpersonal neglect and impoverishment these children may sustain as well. Each of these factors crucially affects not only intellectual development, but also social development, which—according to the American Association for Mental Deficiency—is equally important in evaluating retardation.

Obviously, one cannot arbitrarily apply figures from one set of data to another unrelated set with any validity. These calculations do not represent sound scientific analysis; nevertheless, in the absence of sound scientific investigation of this problem, these deductions demonstrate that there is good reason to suspect that child abuse may be significantly involved in the incidence of mental retardation.

The researcher studying the etiology of mental subnormality must attempt to isolate various confounding variables and control for them. This has yet to be done.

It has been pointed out that most of the abused children in these studies were not believed to have been retarded prior to abuse (Gregg and Elmer, 12; Martin, 13). This point helps to counter the argument that children who are abused were probably retarded to begin with.

Many argue that child abuse is a phenomenon peculiar to the lower class and, therefore, that any retardation found among abused children is more likely to be a function of cultural-familial retardation than of abuse-related causes. This paper has countered this argument

in two ways. First, it has been pointed out that no class has a monopoly on child abuse (Fontana, 5; Gil, 8; Steele and Pollock, 10). Second, it has been demonstrated that child abuse is often accompanied by head trauma and brain damage, which frequently contribute to the child's mental subnormality (Apthorp, 11; Gil, 8; Kempe et al., 2; Martin, 13). This is not to say that cultural-familial factors may not contribute to an abused child's mental subnormality, but in many instances they can hardly be considered the major factors.

One final point should be made. A number of studies have shown that in most instances the abusive parent was at one time an abused child (Fontana, 5; Schneider, Pollock, and Helfer, 14; Steele and Pollock, 10; Walters, 15). Fontana stated that in many cases he has studied, this parental abuse "goes back for generations, and I am afraid it might go forward for many more."

The implication of this consistent factor among abusive parents is indeed serious. Just as genetic defects—a major cause of mental retardation—are passed on from generation to generation, so too may be the social malady of child abuse. Therefore, in the battle to decrease mental retardation, child abuse as a postnatal cause deserves more than cursory investigation by professionals in the field of mental health.

References

1. Caffey, cited by Fontana VJ: *Somewhere a Child Is Crying*. New York: Macmillan Publishing Co., 1973.
2. Kempe CH, Silverman FN, Steele BF, Droegemueller W, Silver HK: The battered child syndrome. *JAMA* 181:17-24, 1962.
3. Robinson NM, Robinson HB: *The Mentally Retarded Child*. New York: McGraw-Hill, 1976, p 163.
4. Brandwein H: The battered child: a definite and significant factor in mental retardation. *Ment Retard* 11:50-51, 1973.
5. Fontana VJ: *Somewhere a Child Is Crying*. New York: Macmillan Publishing Co., 1973.
6. Bakan D: *Slaughter of the Innocents*. San Francisco: Jossey-Bass, Inc., 1971, p 5.
7. Zalba SR: The abused child: a survey of the problem. *Soc Work* 11:3-16, 1966.
8. Gil DG: *Violence Against Children*. Cambridge: Harvard University Press, 1970.
9. Helfer RE, Kempe CH (eds): *The Battered Child*. Chicago: The University of Chicago Press, 1968.
10. Steele BF, Pollock CB: A psychiatric study of parents who abuse infants and small children, in Helfer RE, Kempe CH (eds): *The Battered Child*. Chicago: The University of Chicago Press, 1968, p 106.
11. Apthorp, cited in Brandwein H: The battered child: a definite and significant factor in mental retardation. *Ment Retard* 11:50-51, 1973.
12. Gregg GS, Elmer E: Infant injuries: accident or abuse? *Pediatrics* 44:434-439, 1969.
13. Martin H: The child and his development, in Kempe CH, Helfer RE (eds): *Helping the Battered Child and His Family*. Philadelphia: J.B. Lippincott Co., 1972.
14. Schneider C, Pollock C, Helfer RE: Interviewing the parents, in Kempe CH, Helfer RE (eds): *Helping the Battered Child and His Family*. Philadelphia: J.B. Lippincott Co., 1972.
15. Walters DR: *Physical and Sexual Abuse of Children: Causes and Treatment*. Bloomington: Indiana University Press, 1975.

The Role of Preventive Dentistry in the Navy

Preventive dentistry has no rigid borders: it encompasses all treatment procedures and areas of knowledge and research that aim to preserve the teeth in health and beauty for a lifetime. Preventive dentistry focuses on the *cause* of dental disease; therefore, it is hard-nosed therapy.

Preventive dentistry in the Navy, or in any practice, is important not just for the health and appearance of those we serve. Dental disease has both social and economic impact: social because it is with the mouth that we communicate with others (we speak, we sing, we pout, frown, or smile); economic because dental care is time-consuming and costly. Thus prevention is important for the *total* well-being of the beneficiaries of our dental-care system.

Preventive dentistry has a functional role, too. Employee time off the job to receive dental care not only lightens the employee's wallet but creates a problem in economics for the business manager as well. Within our military services, we must also consider the impact of dental diseases on combat-readiness. Thus we face more immediate and urgent dental health care needs than our civilian colleagues.

In these days of spiraling costs, the role of prevention has a sound basis. It is with prevention that we can attain cost-effective maintenance health care in the population. We can never hope to achieve that by treating only the demands, or existing needs, of those we serve.

The problem we face is not new. Past studies of restorative treatment for the average Navy enlisted man indicate this result:

5.98 carious teeth on enlistment
6.70 restorations done in the service
2.26 carious teeth on separation

Not very good arithmetic, is it?

If we invest our talents in the restoration of carious teeth we will, as we have learned in our universities, place those restorations to last a lifetime. But if we do not also help our patients stop the disease of dental

TABLE I. Dental Profile of the Naval Recruit at Great Lakes, 1976

Decayed Teeth	5.4
Missing Teeth	0.6
Restored Teeth	6.7
DMFT	10.7
Navy Periodontal Disease Index	6/19
Navy Plaque Index	17/85
Calculus Surface Index (modified)	9.2

caries, those restorations are love's labor lost.

Because of the lack of meaningful dental standards for entry into military service, the Navy incurs a huge dental treatment liability with each new group of recruits.

The dental profile of incoming recruits at Great Lakes today is shown in Table I. Projecting those indices into treatment needs shows a great deal of dentistry to be done (Table II). If all 111,557 naval recruits received in 1977 had had these treatment requirements, we estimate that 30 percent of our dental officer resources would have been consumed in their care. Our additional responsibility for Marine Corps recruits would have left us with less than half our resources to care for all the operating forces of the Navy.

A recent survey of dental records revealed that 15 percent of Navy and Marine Corps personnel have advanced dental disease with the potential to compromise personnel effectiveness. Translating the proportions of destructive dental disease described above into military relevance, the high levels of caries and periodontal disease detract from the combat readiness of Navy and Marine Corps personnel. A survey of "in country" Navy and Marine Corps personnel in Vietnam, 1969-1970, demonstrated that as many as 18.8 per thousand had to leave their combat assignments to receive emergency dental care, mostly related to dental caries. In

addition, acute dental emergencies repeatedly occur throughout the fleet and have the potential for interrupting fleet operations and aborting tactical missions. Oral health problems of submarine crews are known to have disrupted schedules and reduced operating efficiency.

Moreover, naval personnel may be required to operate for extended periods in hostile and isolated environments without access to dental care, e.g., as prisoners of war. The following comments from two repatriated POWs illustrate the point:

. . . [T]he person who is sitting in a prisoner of war camp—even though at the present time he does not feel toothache—he is aware that in the future it is going to return again, again, and again. He also knows there is no relief in sight. . .

There is no other problem that can guarantee so much pain, so often, as dental problems. I suggest, then, that the dental problem is one of the more severe problems that the prisoners of war experience.

The role of preventive dentistry in the Navy is to help manage dental health care needs. In handling the yearly workload of recruit dental needs, we must rely on prevention to stop the runaway incidence of disease in the total force.

It is unlikely that we will get more dental officers and more dental technicians. We must rely on preventive dentistry.

The solution

The Navy's preventive dentistry program is founded on (1) educational procedures that will develop proper oral health habits and knowledge, and (2) techniques that will prevent the initiation of oral disease.

All dental activities have a preventive dentistry pro-

gram that includes, as a minimum, the following elements:

- **Topical fluoride application.** All Navy and Marine Corps personnel shall receive a topical fluoride treatment annually and prior to deployment or transfer to activities or areas where dental support is other than maximum.

- **Navy periodontal screening examination.** This examination is to be conducted annually for all active duty personnel.

- **Plaque control program.** Plaque control instruction shall be given through individual or small group sessions. These sessions shall include, as a minimum: (1) education regarding the relationship of plaque to caries and periodontal disease; (2) demonstration of interproximal plaque removal techniques; (3) demonstration of sulcular methods of tooth cleansing with a toothbrush; (4) instruction in the use of plaque disclosing media.

- **Children's program.** Each eligible child shall receive an annual oral health examination, a prophylaxis, a topical application of aqueous fluoride solution, a lecture and demonstration on plaque control, dental health education materials, and a preventive dentistry kit.

Dental activities located ashore shall determine the source of the base water supply and its fluoride content. If the water supply is fluoride deficient or contains higher than optimum fluoride levels, efforts shall be directed toward proper adjustment where feasible.

- **Mouth guards.** All dental activities with limited or full prosthetic capabilities shall offer to provide protective mouthpieces for all active-duty personnel engaged in sports involving body contact.

- **Preventive dentistry officer.** A dental officer shall be appointed as the preventive dentistry officer at each dental activity.

In support of the above program, the role of the dental officer has three main points of emphasis. At a command, staff, or management level, he must show true conviction, ideals, and enthusiasm in support of pre-

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ventive dentistry programs. He should encourage all dental officers to participate in and reinforce the preventive dentistry program, and he should show his fellow commanders in the line what the payoff is. Dental health is the responsibility of Command. Unless the ship or troop commander is convinced of the benefits of good dental health for the status of his forces, the preventive dentistry program cannot succeed.

The dental officer has a role in the early recognition and treatment of oral diseases. He must learn to do the Navy periodontal screening examinations, for they have a real purpose. He must see that the stannous fluoride, plaque control, and oral prophylaxis treatments are done well. Since many of these preventive procedures are delegated to auxiliaries, the dental officer must exercise leadership and not shirk his role as a supervisor. He must see to it that preventive procedures are done thoroughly, or they will not work.

The dental officer must also learn new skills. It is, of course, important to carve amalgam restorations well, so that there are no gingival overhangs. It is important, too, to educate the patient concerning the relationship of plaque to dental caries and periodontal diseases. It is necessary to thoroughly scale off deposits from the teeth to make them smooth and easier for the patient to clean, and to help the patient learn skills with brush, floss, toothpick, and disclosant.

But the dental officer must also understand that caries and periodontal diseases are social diseases; they are related to social class and educational status. These factors, more than any dental treatment or chemical mouthwash developed by research, will cause changes in oral hygiene. The dental officer must therefore learn to use social sciences, become a behaviorist, and learn to prevent plaque control in accordance with the felt needs of the patients and their social aspirations.

Finally, the individual sailor and marine have a role in preventive dentistry in the Navy. They must make a personal commitment to effective daily cleansing of their teeth, to a sensible diet with reduction of sugar, and to a regular recall examination schedule.

Dental enemy, first class

The dental enemy, first class, is the bacterial plaque deposit on the teeth. Plaque may sometimes be so thick that it is obvious to the unaided eye, but its detection is assisted by disclosing agents. Although all plaques may look the same to the dental officer, different sites provide ecological niches that allow certain microorganisms to become established.

Streptococcus mutans has been strongly associated with dental caries in man and laboratory animals and is

TABLE II. Initial Projected Treatment per 1,000 Naval Recruits at Great Lakes

Operative and Crown and Bridge	
Amalgam (one surface)	3,161
Amalgam (two or more surfaces)	2,752
Root canal filling	83
Bridge	4
Crown	28
Prosthodontics	
Full denture	0
Partial denture	31
Oral Surgery	
Root, residual removal	118
Tooth removal	374
Periodontics and Oral Hygiene	
Gingivectomy	16
Prophylaxis	996
Scaling (periodontal)	728
Caries prevention treatments	2,000
Plaque control instruction	4,744
Examination	
Examinations and consults	1,815
X-rays	4,224
Miscellaneous	
	7,611
Total	28,685

considered the main cause of cavities. This bacterium produces a sticky slime about itself, composed of glucans of differing solubility. These glucans help it adhere to the tooth and may help localize acids on the tooth surface. Glucans and acids are the result of sugar metabolism, and *mutans* prefers sucrose, or table sugar, to other sugars.

Streptococcus mutans prefers to colonize on the teeth. We do not find it in newborns, or in children until there are posterior interdental tooth contacts. In naval recruits, it is most abundant in the posterior proximal spaces. It is probably transmitted from parents to offspring.

Periodontal diseases may also be infectious diseases, caused by bacteria harbored within or about bacterial plaques. Studies have shown development of gingivitis in association with plaque at the gingival margin, and its resolution with plaque control or removal.

Periodontal diseases can be induced in animals by actinomyces and some gram-negative anaerobes. Some streptococci also cause periodontal diseases in animals, but do not seem strongly associated with human gingivitis.

As plaque extends into the gingival sulcus, and thence into the crevice, there develops a complex of

attached plaque and, on its soft-tissue face, a mixture of spirochetes and gram-negative rod and filamentous forms, some of which are flagellated. In so-called periodontosis, almost all microorganisms are of the latter, unattached types.

Research role in preventive dentistry

Preventive dentistry measures developed by the National Institute of Dental Research are primarily concerned with preschool and elementary school age population groups. In spite of exciting results reported in the past few years, there is no clear indication of a dramatic breakthrough that may soon result in new and significant agents for prevention of destructive dental diseases. Meanwhile, the Navy Dental Corps is faced with overwhelming proportions of dental caries, especially in the 17-24 age group, and with a periodontal disease rate of almost 100 percent in naval personnel.

In order to fulfill its mission of providing dental care for all active-duty naval personnel, the Navy Dental Corps must conduct research to develop more efficient techniques for control and prevention of destructive dental diseases and injuries. These studies can be conducted by no other federal or private agency.

Cost-effective, innovative methods must be developed to bring our treatment liabilities into congruence with our ability to provide those treatments. Preventive and treatment measures must be demonstrated as safe and effective for mass application in the naval service. Identifying and treating servicemen with a high risk of incapacitating dental problems is a continuing need if we are to maintain a sound defense posture.

Our goal in preventive dentistry research is to ensure that Navy and Marine Corps personnel enjoy a lifetime of health and attractive appearance of the oral structures. These health benefits can be realized from early diagnosis, which singles out incipient lesions at a reversible stage, and from available, highly effective, and personally acceptable preventive measures.

Our strategies for prevention are (1) prevention of tissue destruction, and (2) early diagnosis and treatment of incipient lesions.

The first strategy has two components: prevention of tooth destruction and prevention of oral bone destruction. Each of these components can be further divided into problems of controlling or eliminating the pathogenic organism, improving host resistance, and altering microbial substrates.

At the Naval Dental Research Institute, current work units for control of pathogenic microorganisms involve the glucans, which make the plaque sticky and insoluble, and the use of fluorides or other antibacterial agents.

Until such time as we have evaluated these new preventive measures for effectiveness, and have shown in community demonstration projects that they are worthy of implementation as public health measures, the dental officer of today must rely on his three-agent stannous fluoride treatments and plaque-control instruction to manage the incidence of new diseases.

We have evaluated the current Navy plaque control program by following recruits over a six-month period, through completion of their service school instruction at Great Lakes. As a result of group plaque control instructions, using the Navy dental health series films (MN 11214 A-E) "Your Teeth Are in Your Hands," we have found initial short-term reductions of plaque. The net result was a significant reduction of the Navy Plaque Index, at the end of six months, by 3 percent. There was a parallel reduction of the Navy Periodontal Disease Index by 4 percent.

Evaluation on a dose-response basis showed trends of increasingly favorable response with an increasing number of preventive dentistry treatments. There were trends toward reduction of caries attack rate, too, but these were not statistically significant. Individual instruction by the dental officer, as a supplement to group instruction, was found to further improve the effect.

The posterior proximal surfaces of the teeth were found to accumulate the greatest amount of plaque, and those sites had the highest caries attack rate. Our work for this year is to evaluate a new plaque control program which uses educational psychology and emphasizes interdental cleaning, and in which all clinical personnel participate in individual reinforcement of plaque control with their patients.

Summary

Preventive dentistry is vital to the overall management of dental health care delivery in the naval service. Without a strong preventive dentistry program, we cannot hope to fulfill our mission of prevention and treatment of diseases and injuries that may interfere with the performance of naval duties.

Each member of the naval service has a role to play, whether that individual is a commander, a dental officer, a dental technician, a sailor, or a Marine.

Dental research has a role to play, too. We have a vigorous program of work units before us, with the goal that Navy and Marine Corps personnel will enjoy a lifetime of health and attractive appearance of the oral structures. We hope to achieve this by providing dental officers with efficacious, cost-effective, personally acceptable, and proven preventive health measures to use in their daily practice.

Outpatient Medical Records Audit: A Dialogue

Editor:

Dr. Leslie C. Ellwood's article "Outpatient Medical Records Audit," which appeared in the January issue of *U.S. Navy Medicine*, leaves a great deal to be desired as an example of medical audit. While his intent may have been worthwhile, his resultant misinterpretation and misuse of generated data is at best misleading.

First, to refer to two articles (2,3) relating specifically to one professional discipline and subsequently make a statement that "Audit of outpatient medical records is generally reviewed pessimistically . . ." is somewhat incredible in itself. Furthermore, review of the referenced articles does not relate a pessimistic view of outpatient audit to this reader. Pessimistic views encountered in medical audit are usually a result of poor design, improper implementation, and inadequate education (4-9).

Second, "lack of accepted criteria of care" and "inadequate recording of care delivered by physicians" are not valid problems associated with implementation of medical audit. Criteria sets, such as the American Medical Association's model screening criteria (10), are readily available for use or modification by the medical staff. Discovery of inadequate recording of treatment provided is one of the primary functions of medical audit, and as such certainly presents no problem in initiating medical audit.

Third, although Dr. Ellwood was able to document the quality of medical care provided, his interpretation of that documentation does not seem justified by the data he himself presents. An unexplained absence of 13.5% (34/244) of identified records indicates a problem area itself and suggests a need for further investigation. A variation analysis of the data presented differs significantly from the "error rate of 3.17%" expressed in the article. The term "error rate" itself is neither desired nor standard in discussing variances from an expressed criterion standard, but should be replaced by the term "variation." Furthermore, variations from criterion standards are reported individually for each element, not lumped together and an average rate expressed.

An expanded version of the "Outpatient Process Audit for Acute Otitis Media" is presented in Figure 1.

Element 1 indicates that the reported practice should be 98% (200/204) to reflect the statement that there were "four errors noted in which the diagnosis of infected eardrum failed to describe both middle ear fluid and inflammation."

Element 3 indicates that the reported practice should be 94.7% (193/204), indicating a variation of 5.3% to reflect the statement that "In 11 entries we could not determine the milligram dosage of antibiotic prescribed . . ."

Element 4 indicates that the reported practice should be 97.6% (199/204), indicating a variation of 2.4% to reflect the statement that "in 5 chart entries the dosage schedule was not recorded."

Element 5 indicates that the reported practice should be 73.6% (150/204), indicating a variation of 26.4% to reflect the statement that "54 chart entries failed to give this information" (the duration of therapy).

Element 8 indicates that the reported practice should be 81.9% (167/204), indicating a variation of 18.1% to reflect the statements that "The number of appointments lost because patients failed to appear was 24," and "failure to record patient compliance with prescribed antibiotic regimen when persistent otitis media was noted in followup exam . . . occurred in 13 of 49 chart entries . . ."

Complication rate analysis reveals similar findings. Element 1 indicates that the complication rate should be 39.2% (80/204) to reflect the statement that "serous otitis media following acute otitis media was noted in 80 charts . . ."

Element 2 indicates that the complication rate should be 21.5% (44/204) to reflect the statement that "Persistent fluid and inflammation after antibiotic therapy were recorded in 44 charts . . ." Furthermore, critical management was not met in 26.5% (13/49), as noted by the statement that "failure to record patient compliance with prescribed antibiotic regimen when persistent otitis media was noted in followup exam . . . occurred in 13 of 49 chart entries . . ."

These figures seem to imply more significant and realistic problem areas than does "an error rate of 3.17%."

The fourth main objection to the article is the manner

FIGURE 1. Outpatient Process Audit for Acute Otitis Media

Elements	Standard	Reported Practice	Exceptions
Justification for Diagnosis:			
1. Examination must reveal both:	100%	98%	
a. Evidence of substance other than air behind tympanic membrane			
b. Evidence of inflammation			
Therapy:			
2. Requires antibiotics	100%		
3. Prescribed antibiotic minimum recommended dosage	100%	94.7%	
4. Dosage schedule of antibiotic at least t.i.d.	100%	97.6%	
5. Medication prescribed for at least 7 days	100%	73.6%	
6. Antibiotic spectrum <i>H. influenzae</i> when child is older than 4 years			Therapy is for persistence of otitis, and initial therapy covers <i>H. influenzae</i>
Recurrence noted:			
7. More than 2 acute otitis in preceding 3 months noted by physician			
Followup:			
8. Final followup exam for acute otitis media episode reveals normal ear by otoscopy	100%	81.9%	Final chart entry meets critical management for complication, or ENT referral completed
Complications:			
1. Serous otitis media	0%	39.2%	Critical Management: 1. Decongestant, followup scheduled
2. Persistence of infection	0%	21.5%	2. Antibiotics (Note indicates probable compliance with initial therapy; followup scheduled)
3. Perforation	0%		3. Followup scheduled
4. Allergic reaction to antibiotic	0%		4. Noted: antibiotic discontinued
5. Severe diarrhea	0%		5. Noted for future antibiotic choice

in which the audit itself was performed. Twenty-nine valuable physician-auditor hours is an unbelievable waste of physician time. The initial screening of all patients' charts should have been performed by medical records personnel, utilizing the audit criteria, and only those records not meeting the criteria should be submitted for formal physician peer review.

While it is fervently hoped that all disciplines involved in medical care will become actively involved in medical care evaluation studies, haphazard performance and reporting of these studies tend only to detract from the overall value and usefulness in assuring quality medical care.

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References:

1. Ellwood LC: Outpatient medical records audit. *U.S. Nav Med* 69(1):26-28, 1978.
2. Mead W: Quality assurance for health supervision of the ambulatory child. *J Fam Pract* 3(6):587-591, 1976.
3. Osborne C, Thompson H: Criteria for evaluation of ambulatory child health care by chart audit: development and testing of a methodology. *Pediatrics* 56(suppl 4):625-629, 1975.
4. Jacobs CM, Christoffel TH, Dixon N: *Measuring the Quality of Patient Care: The Rationale for Outcome Audit*. Cambridge: Ballinger Publishing Co., 1976.
5. Davidson SV: *PSRO Utilization and Audit in Patient Care*. Saint Louis: The C.V. Mosby Co., 1976.
6. Ertel PY, Aldridge MG: *Medical Peer Review: Theory and Practice*. Saint Louis: The C.V. Mosby Co., 1977.
7. Zentmyer RK: Health care evaluation: it really works. *U.S. Nav Med* 66(2):9-15, 1975.
8. Porterfield JD: Why audit. *Qual Rev Bul* 1(1):2, 1974.
9. Williamson JW: Evaluating quality of patient care, a strategy relating outcome and process assessment. *JAMA* 218(4):564-569, 1971.
10. *Model Screening Criteria to Assist Professional Standards Review Organizations*. Chicago: AMA, May 1975.

Editor:

ENS Jimerfield's comments and clarifications concerning the article "Outpatient Medical Records Audit" (1) are most welcome, as they contribute to a better understanding of these audits.

Outpatient medical record audit, while theoretically feasible, in practice is difficult to perform in a manner which yields relevant data as to the quality of care the patient has actually received (2,3,4).

To quote from the originally referenced articles, Dr. Mead, writing in the *Journal of Family Practice*, noted that "Since criteria were found recorded less than 50 percent of the time by both pediatricians and other physicians, it is obvious that chart audit is unsatisfactory at this time." In his conclusions, he states that "in view of the present chart systems and recording patterns, it is apparent that meaningful peer review of health supervision by chart audit is not possible at this time." (2)

Pediatrics Supplement 4, in 1975, indeed did not have any significant problems in devising model audits, but when attempting to perform the audit had several problems. Osborne and Thompson wrote: "In contrast to the acceptance of audits in hospitals, few physicians have been willing to review ambulatory care or office practice because it seems virtually impossible to document what actually occurs." Potential problems in chart audit were described as including "lack of standardization of recorded information . . . and information is frequently incomplete and inadequate." (3)

I personally find these statements pessimistic, and my daily observation of military medical records on the 30 to 35 patients I see each day would indicate no remarkable improvement in medical recording since these articles were written.

Medical record audits which will document the consistent major problems of inadequate physician recording of outpatient care delivery, patient possession of medical records, and treatment failures due to the multiplicity of factors found in outpatient practice unrelated to physician performance, can provide a measure of the variances of these elements. But these variations significantly impede our ability to measure actual physician care variations from acceptable management. A recent report about a military facility's outpatient audit further documented these problems (4).

ENS Jimerfield's analyses of the variances found in our audit of otitis media in pediatric patients are very correct, technically, and highlight the elements which make measurement of individual physician variation, as contrasted with institutional variation, difficult. The absence of 13.5% of identified records is a problem area, but it is a result of patients' possession of their health records in a medical region where they must obtain care from branch clinics and the regional medical center, and of the transience of our patient population.

I agree that ENS Jimerfield's analyses of elements 1 through 7 are correct.

Inclusion of missed appointments in element 8 is technically correct as an institutional variation, but is not physician variation. Failure to record patient compliance is a variance of complication management. Exclusion of these variations from analysis of element 8 (followup), which is the closest estimate we have of outcome, yields a very low variation for individual physician record-keeping in our clinic during this audit.

In this particular diagnosis, the significant complications of persistent infection (21.5%) or serous otitis media (39.2%) are not the result of inappropriate physician practice but of the nature of the disease (5). The purpose of analysis of complications is to determine if the physician completed the critical management, and in this audit the physicians did.

I applaud ENS Jimerfield's fourth objection about the necessity for the physician to perform the audit. Unfortunately, the ADM Joel T. Boone Clinic does not have medical records personnel trained in medical audit, and, in fact, personnel hiring ceilings do not provide sufficient medical records clerks to perform all the other essential chores in a timely manner. If the audit were not entirely performed by a physician reviewer, there would be no audit.

If outpatient medical records audit for quality of care review is to be performed at only the health facilities where persons of ENS Jimerfield's technical caliber are assigned, then a very large proportion of Navy outpatient health records and physicians will never be audited.

Adaptation of this system of quality review to local skills and needs does not detract from its value or usefulness in assuring quality medical care. Our audits do raise the quality of care delivered and of medical records entries, and thus fulfill the purpose for which all audits are designed.

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References:

1. Ellwood L: Outpatient medical records audit. *U.S. Nav Med* 69(1):26-28, 1978.
2. Mead W: Quality assurance for health supervision of the ambulatory child. *J Fam Pract* 3(6):587-591, 1976.
3. Osborne C, Thompson H: Criteria for evaluation of ambulatory health care by chart audit: development and testing of a methodology. *Pediatrics* 56(suppl 4):625-629, 1975.
4. Burney R, Newman J: Experience with retrospective medical audit in ambulatory care. *Milit Med* 143(1):29-31, 1978.
5. Bluestone C, Shurin P: Middle ear disease in children: pathogenesis, diagnosis, and management. *Pediatr Clin North Am* 21(2):379-400, 1974.

SG's TESTIMONY . . . VADM Willard P. Arentzen, appearing before the Defense Subcommittee of the House Committee on Appropriations 8 May 1978, outlined a number of initiatives to ease the Navy Medical Department's current physician shortage (a problem shared by all three military medical services) and to upgrade Navy medical facilities.

Some of the reasons most frequently cited for the shortage of military doctors, VADM Arentzen noted, are the financial rewards of private practice; insufficient ancillary support personnel and "cumulative degradation of facilities and equipment," resulting from fiscal restraints; and inability to provide adequate support for continuing medical education.

"The current situation is bad," he said. "However, I do not believe it is hopeless. The physician shortage may be turned around relatively soon if we obtain the support required."

VADM Arentzen noted that DOD has developed a legislative proposal to stabilize special pay for physicians, thus helping to reduce financial uncertainty. In addition, he said, the Navy has recommended increased funding for FY79 for additional ancillary support personnel, maintenance and repair of medical facilities, and support of continuing education.

Meanwhile, VADM Arentzen said, "We are not just sitting around wringing our hands." The Navy Medical Department has "significantly reduced the number of physicians in administrative positions," he reported. In addition, BUMED proposes to convert a small number of psychiatrist positions to clinical psychologist positions, some anesthesiologist positions to nurse anesthetist positions, and some general medical officer positions to clinical nurse/primary-care nurse positions. In certain areas such as radiology, where there is a critical shortage of physician specialists for whom no other health personnel can reasonably be substituted, "We will be attempting to obtain the service by contract," he said.

"The health services provided by the Navy Medical Department, in terms of quality, are excellent," VADM Arentzen said. "We provide the best quality of care available."

"The availability of care is usually what is questioned," he added.

ASBESTOS ALERT . . . The Navy, in cooperation with the U.S. Department of Health, Education and Welfare, is attempting to notify Navy people—military and

civilian—who may have been exposed to airborne asbestos that such exposure presents a health risk.

In recent years, it has become known that inhalation of airborne asbestos fibers can lead to serious health problems. Dangerous levels of invisible asbestos fibers can be created whenever asbestos is cut, milled, or processed, unless strict safety precautions are observed.

According to recent BUMED guidance, current Navy Department civilian employees, their relatives, or their designated representatives who wish to file compensation claims as a result of asbestos exposure should contact the Navy Office of Civilian Personnel (OCP). Former civilian employees who wish to file should contact the U.S. Department of Labor, Office of Workers' Compensation Programs, Federal Employees' Compensation Section.

Claims of active-duty personnel will be processed through the Navy disability evaluation system. Former or retired military personnel should file with the Veterans Administration.

Present and former contractor employees should file with the U.S. Department of Labor, Office of Workers' Compensation Programs, Longshore and Harbor Workers' Compensation Section, or the state Workmen's Compensation authorities, as appropriate.

AUDIT TIPS . . . Recently completed audits uncovered the following discrepancies:

- Command was recording travel advances as expenses in its financial records and was allowing travelers to file travel claims as late as six months after completing their trips. NAVAUDSVC recommends that the command record travel advances as monetary advances and require that travel claims be filed within 15 days after completion of trip (NAVCOMPT Manual, par. 032106-2; NAVSO P-3006-1).

- Record outpatient treatment to foreign students in such a manner as to facilitate reporting to BUMED for billings to foreign governments. (BUMED letter BUMED:462:JLP:arh 6320 of 22 Dec 1977 promulgated an advance change to the Financial Management Handbook [NAVMEP P-5020] for all BUMED-commanded activities. This advance change provided detailed instructions on how to report outpatient visits for FMS students and their dependents to the Bureau for centralized billing. Additionally, Change 21 to NAVMEP P-5020, incorporating the detailed instructions, will be distributed in the near future.)

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